# Public Utilities

Volume 55 No. 13 June 23, 1955

AN ECONOMIC APPRAISAL OF THE PRIVATE ELECTRIC UTILITY INDUSTRY
*By C. P. Guercken*

« »

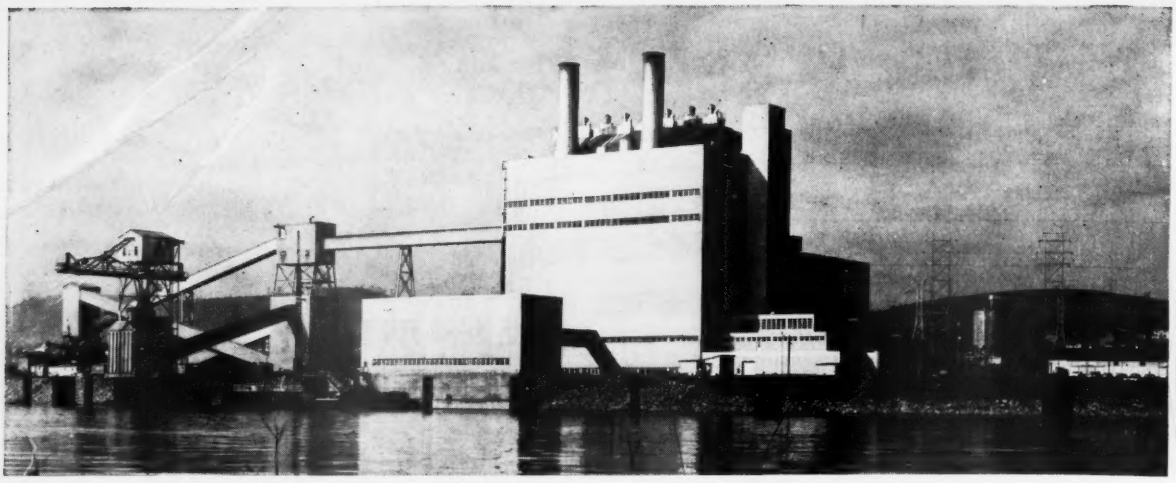
Reactor Insurance Risks Still Unsolved
*By Herbert M. Bratter*

« »

Cincinnati Transit Beats Autos with "Clubs"
*By George W. Keith*

« »

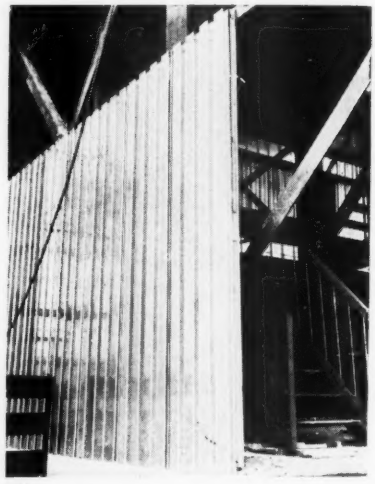
"Cost of Money" as the Determinant of Public Utility Rates



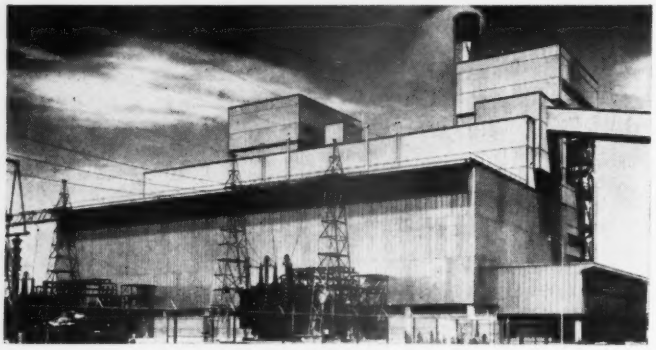
Q-Panel walls grace the new Elrama Power Plant (above) near Pittsburgh. It was designed by Duquesne Light Company's Engineering and Construction Department. The Dravo Corporation was General Contractor.

# Why fine new power plants everywhere have Q-Panel Walls

Builders of new power plants in all parts of the country have specified Q-Panel walls for the following very good reasons: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12″ masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below and write for literature.



Q-Panel walls (above) go up quickly in any weather because they are dry and hung in place, not piled up.



More than 32,000 sq. ft. of Q-Panels were used to enclose the impressive Hawthorn Steam Electric Station (left) of the Kansas City, Missouri, Power and Light Company. Ebasco Services, Inc., designed and built the plant.

**Robertson**

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Single copies $1.00. Annual subscription price (26 issues a year): United States and possessions, $15.00; Pan American countries, $15.00; Canada, $16.00; all other countries, $17.50.

Entered as second-class matter April 29, 1915, under the Act of March 3, 1879, at the Post Office at Baltimore, Md., December 31, 1936. Copyrighted, 1955, by Public Utilities Reports, Inc. Printed in U. S. A.

# Public Utilities FORTNIGHTLY

VOLUME 55 JUNE 23, 1955 NUMBER 13

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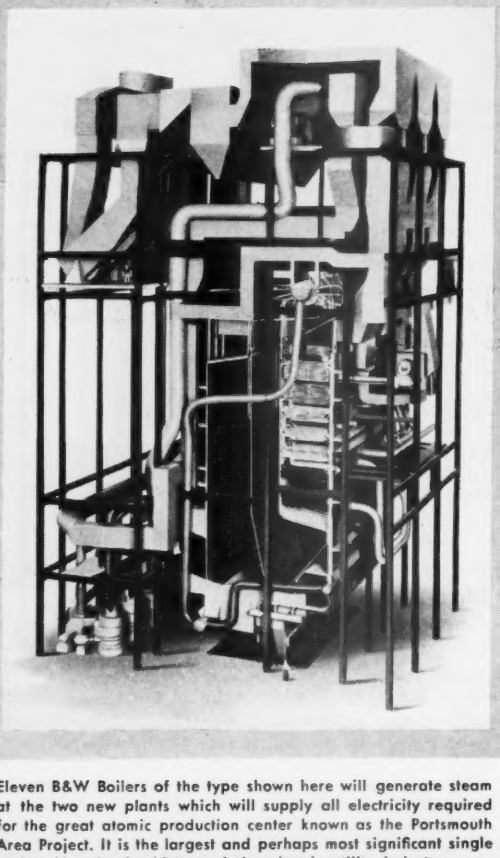
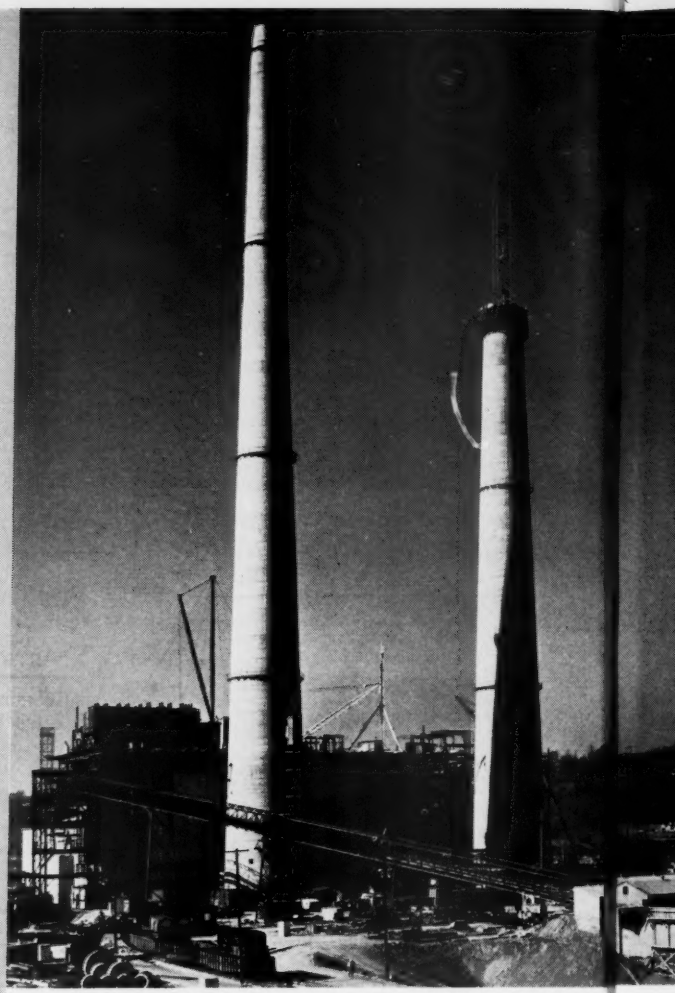
# 11 B&W Boilers help OVEC supply 15 BILLION KWHRS OF POWER FOR ATOMS



Eleven B&W Boilers of the type shown here will generate steam at the two new plants which will supply all electricity required for the great atomic production center known as the Portsmouth Area Project. It is the largest and perhaps most significant single undertaking in the history of the electric utility industry.

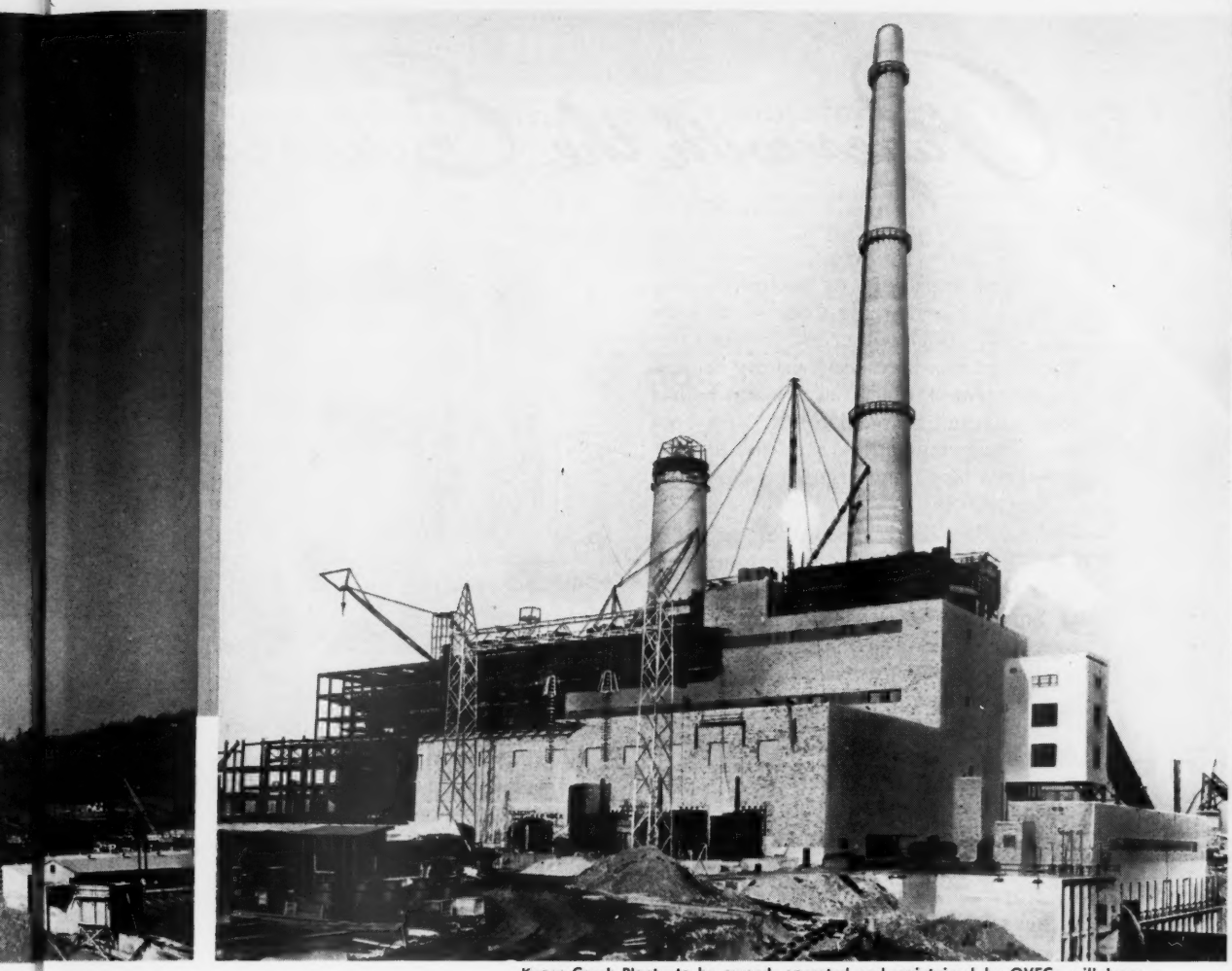


Clifty Creek Plant near Madison, Indiana, is scheduled for completion by the Spring of 1956. Unit No. 1 began delivering power in late January 1955. The Clifty Creek Plant will be owned, operated and maintained by IKEC. Its six units will have a total capacity of 1,200,000 kw—20 per cent larger than the Kyger Creek Plant. American Gas and Electric Service Corp. is the plant design engineer.

Once again America's private electric companies have demonstrated their resourcefulness. By combining their knowledge, skills and resources, 15 prominent utilities have accomplished a job of tremendous proportions quickly and efficiently—a job which would have been too big for any one company to handle.

By next year, two new power plants—now under construction as a result of cooperative planning by the 15 companies comprising Ohio Valley Electric Corp. and its subsidiary, Indiana-Kentucky Electric Corp.† —will be ready to supply more than the 15-billion kilowatt-hours of energy annually required for the process of uranium diffusion at the new Portsmouth Area Project. This huge block of power is greater than that used by New York City and is almost half as much electricity as is produced in all of France.

A number of factors relating to fuel, transportation and transmission were responsible for the choice of sites—both on the Ohio River—for the two power plants needed to meet this great demand. Now par-



Kyger Creek Plant—to be owned, operated and maintained by OVEC—will have five units with a total capacity of 1,000,000 kw. Unit No. 1 began delivering power in late January 1955, a full month ahead of schedule. The last unit is scheduled for completion by early 1956. Sargent & Lundy of Chicago is the design engineer.

tially completed, Kyger Creek and Clifty Creek plants will eventually have a combined capacity of 2,200,000 kw, and while Clifty Creek will be larger, the two plants will be similar.

Kyger Creek's five B&W Open-Pass Boilers will each produce 1,330,000 lb of steam per hr at 2000 psi and 1050 F, with reheat to 1050 F, and six B&W Boilers of the same type and size will furnish steam for kilowatts at Clifty Creek. The utilization of high temperatures, high pressures and reheat at both plants will place them among the most efficient and economical in operation. Together with a comparatively low fuel cost, this high efficiency rate will hold down the ultimate cost of the power produced there.

The choice of B&W Boilers and allied equipment for a project of this importance is an expression of confidence in B&W's contributions to efficient steam generation through intensive research and development covering nearly a century. We will be glad to discuss your boiler needs at your convenience.

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# Pages with the Editors

THE "ghost of Smyth *v.* Ames"—to use an expression of the liberal wing of the U. S. Supreme Court—has been very active during the last few months. The ghost has been seen visiting around the different state legislatures and he has been haunting more than one courtroom where important utility rate case appeals have been heard and argued.

CONTRARY to what some of the more doctrinaire exponents of the original cost basis for rate making expected, the ghost of Smyth *v.* Ames has not been laid by the Natural Gas Pipeline decision of 1942 or the Hope Natural Gas Company Case in 1944. If anything, the past decade of inflationary price rises since the end of World War II has revived the old controversial spook considerably.

ONE of the peculiar patterns which has been repeated in at least five states is the tendency of the original cost proponents to run to the state legislatures immediately after state courts have decided in a utility rate case that some recognition must be given to replacement cost in the rate-making process. We have seen this happen in Maine, Maryland, Ohio, North Carolina, and Pennsylvania. As of this writing, none of these bills (to spell out a statutory restriction in favor of original cost rate making) has been enacted into law, although a bill in the Ohio legislature was still being considered in committee.

NOW comes word that the appellate division of the New York supreme court has decided (3 to 2), in the largest single utility rate increase application in the history of commission regulation in the United States, to require the New York Public Service Commission to consider replacement cost in fixing the rate-making value of the New York Telephone Company. Following the pattern already mentioned, the day following the decision

C. P. GUERCKEN

of the court, the state attorney general, Jacob Javits, announced that he would ask the legislature at Albany to bar the replacement cost factor by an amendment to the regulatory law of that state. Chances are that the New York legislature will at least want to wait until the New York court of appeals, the tribunal of last resort in the Empire state, has had a chance to review the New York Telephone Company Case, before considering any legislative amendment.

BUT it is clear that the "ghost of Smyth *v.* Ames" will have to win his resurrection in two places instead of one, if the replacement cost principle is to be re-established in more states as a result of court decisions. Where the original cost advocates lose their case in court, it is clear that they will try again in the state legislature.

FROM the economist's point of view, there is still much to be said on the side of reviving this inflationary ghost. The leading article in this issue was written by C. P. GUERCKEN, assistant to the vice president of Ebasco Services Incorporated, who has made an impressive survey of various economic indicia which indicate that continued adherence to original

# OPERATION VOLTAGE REPORT NO. 2

## Key facts in the application of regulators and capacitors

**FIG. 1**

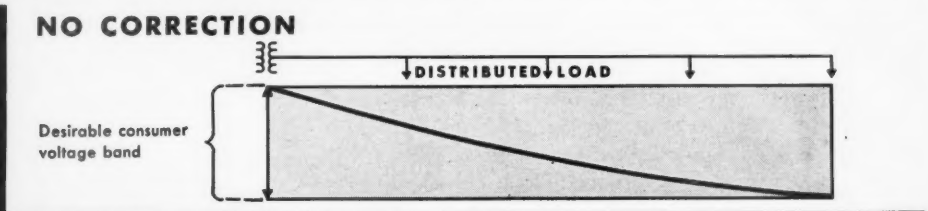



**FIG. 2**

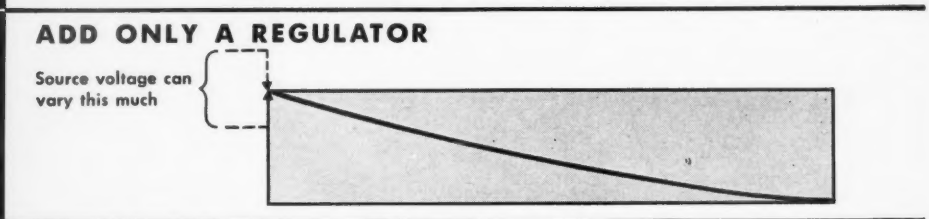



**FIG. 3**

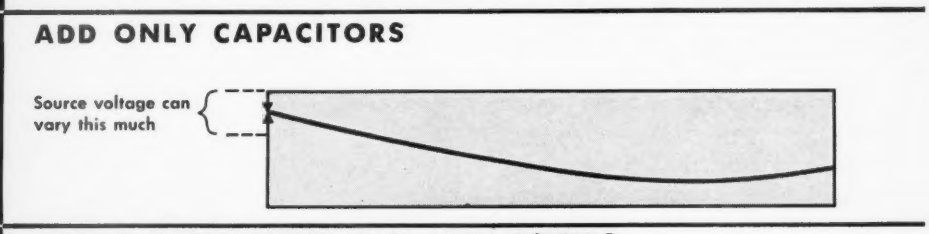
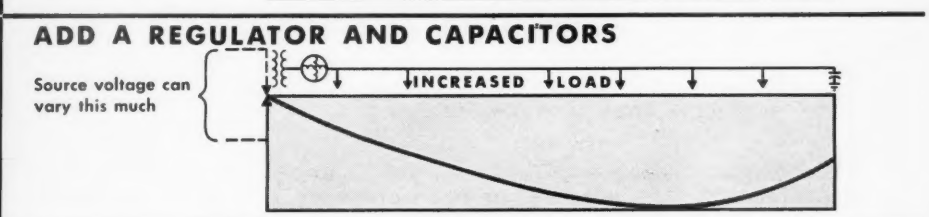



**FIG. 4**




# What happens to system voltage when capacitors and regulators are installed?

Figure 1 shows a full-load voltage profile along a distribution feeder with no voltage corrective devices. Figure 2 shows how a voltage regulator is capable of bucking and boosting varying source voltage so as to maintain voltage within limits all along the feeder.

Figure 3 shows what happens when only a switched capacitor bank is added to the feeder: The voltage spread along the feeder is reduced and additional feeder loading is possible.

Figure 4 shows the result of the addition of voltage regulators and switched capacitors: When used together, they provide an ideal means of accurately controlling voltage and increasing system capacity for additional load. This produces satisfied customers, as well as providing the best return on system investment.

In fact, for all systems, the use of capacitors and regulators ***always*** results in superior voltage control and greater system load carrying capacity.

G-E engineers have just completed a comprehensive study of the problems of feeder voltage regulation. This report is the second in a series dealing with the important results of the study. If you would like to discuss voltage problems on your system, contact your G-E Apparatus Sales Engineer. General Electric Co., Schenectady 5, N. Y. 645-2

**Portable demonstrator being used by G-E Engineers R. M. Butler and D. R. Samson to show effect of capacitors and regulators under variety of feeder load conditions.**

GENERAL ELECTRIC

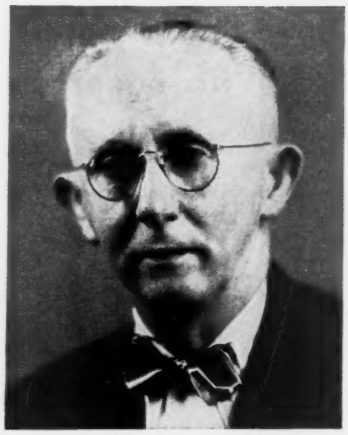
cost concepts has produced an end result which is unrealistic in the light of actual price changes. This author's suggested remedy, to bring the regulatory components in the rate-fixing process into proper balance, is estimated at a cost to the average utility consumer of about five cents a day—a small sum to rectify what he considers a serious difficulty in regulatory policy.

MR. GUERCKEN graduated in 1931 from New York University with a BS degree in electrical engineering. After studying economics, accounting, and finance at the London School of Economics, he stayed on in England and joined Edmundson's Electricity Corporation, then a subsidiary of Utilities Power & Light Company of Chicago. In 1937 he became associated with the County of London Electric Supply Company as assistant to the general manager. Returning home in 1940, he joined Ebasco Services Incorporated as budget sponsor.

* * * *

ATOMIC development for peacetime purposes already has run into a number of stubborn problems which have nothing to do, *per se,* with the technical aspects. It will probably run into more of them before the first atomic fuel electric power goes on the line for service to the general public. One of these problems is the requirement of adequate insurance coverage. Public service facilities of all kinds must be adequately insured against all reasonable and foreseeable risks so as to protect the public in a continuity of service.

HERBERT M. BRATTER



GEORGE W. KEITH

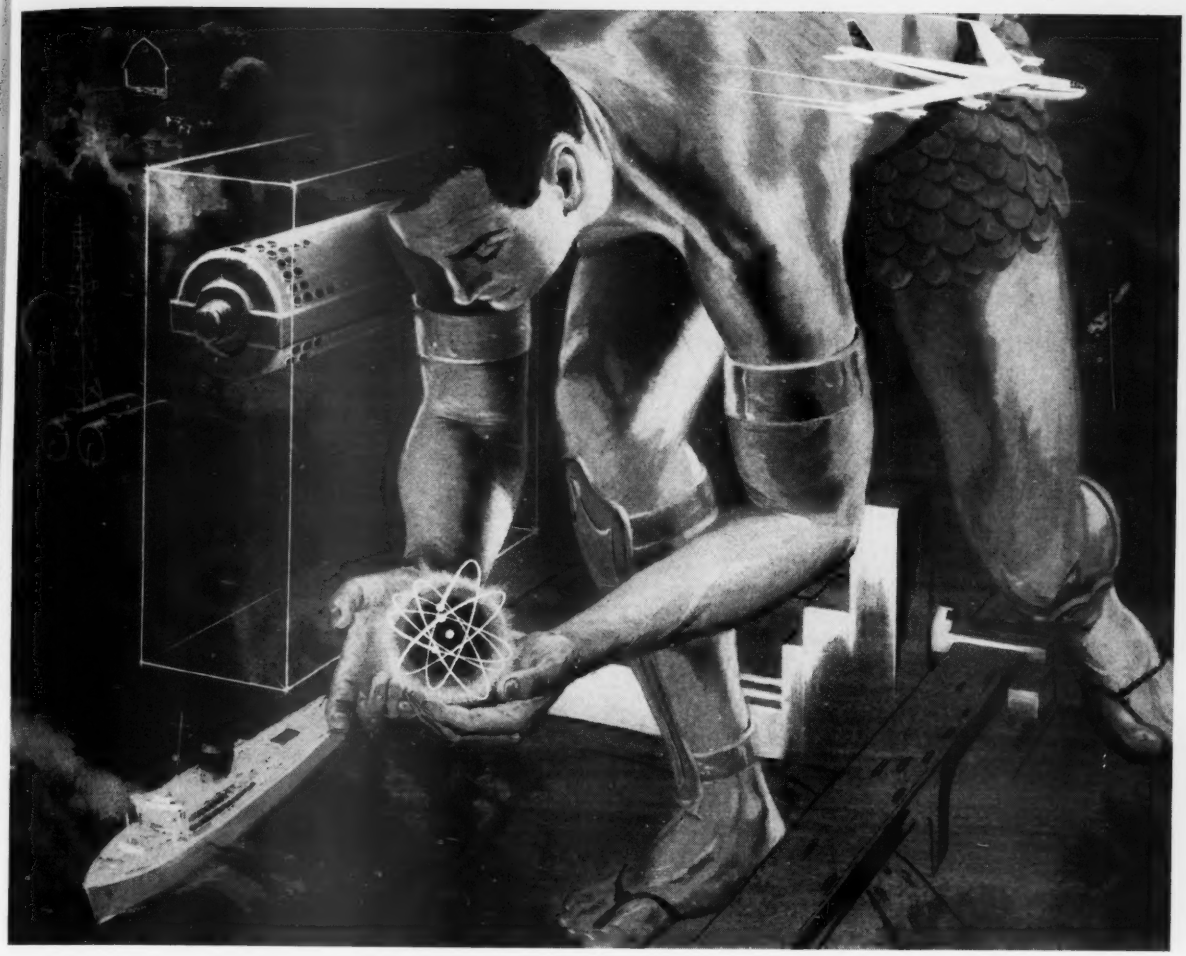
HERBERT M. BRATTER, Washington author of financial, banking, and business articles, whose article on this subject begins on page 755, has examined the various factors which make the question of insuring the atomic power risk so vexing.

* * * *

ALL those in the transit industry and most of us outside of it should be interested in the experiments being conducted in so-called "club riding" in Cincinnati. Regulatory commissions, as well as transit company operators, investors, and passengers, have considered many ways of trying to induce people to ride buses instead of driving their own cars, particularly when the current high volume of customer spending makes the cost feature such an important factor. GEORGE W. KEITH, professional author of business articles, now resident in Cincinnati, Ohio, gives us an entertaining account (beginning on page 764) of the genesis, organization, and performance of the so-called transit "clubs."

THE next number of this magazine will be out July 7th.

*The Editors*



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# Coming IN THE NEXT ISSUE

★

### *WHAT TO DO ABOUT HURRICANE LOSS PROTECTION*

Previously announced for earlier publication in the May 26th issue, this article is now definitely slated to appear in the July 7th issue. Within the period of six weeks during the past year the Middle and North Atlantic states were hit by three tropical hurricanes of major intensity. Damage and losses to public utility companies were tremendous, by any standard of measurement. H. E. Garrett, an expert connected with Ebasco Services Incorporated, gives us some practical advice about protection from such losses in the future.

### *THE EMPLOYEE'S RÔLE IN PUBLIC RELATIONS*

Kimball I. Jack, general sales, promotion, and information manager of the Washington Water Power Company, Spokane, Washington, has written an account of how his organization has come to grips with the somewhat touchy problem of utilizing employee relationships and contacts to spread the straight facts about the importance of the enterprise system in public service. He outlines a practical and systematic program for getting results along this line.

### *AUTOMATIC PHONE TOLL TICKETING REQUIRES SPECIAL HANDLING*

James H. Collins, professional writer of business articles now resident in Hollywood, California, has taken up the subject of automatic toll ticketing and other automatic accounting now being installed by Bell and independent companies. This article shows that some form of automatic control was necessary to protect the subscriber as well as the telephone company from operating abuses or difficulties which might otherwise grow as a result of the new freedom allowed in direct dialing. There are still problems to be worked out in gaining complete public confidence in mechanical auditing as compared with the older system of tickets written by operators. Automatic ticketing is part of the new merchandising objectives in the telephone business, but it involves new telephone habits and a new teaching problem for the subscriber.

★

*Also . . .* ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***



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# Remarkable Remarks

*"There never was in the world two opinions alike."*
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*Statistician, The Bank of Toronto.*

"The principle which enables consumers to get the most of what they want is the principle of the free market."

ALEXANEDR R. HERON
*Vice president and director, Crown Zellerback Corporation.*

"There is only one way in the world by which any job has ever been created. That is by selling the product of that job to a willing customer."

HENRY G. LITTLE
*Chairman of the board, Campbell-Ewald Company.*

"Many businesses, I fear, are still geared to pre- and postwar levels, whereas completely reliable statistics and forecasts tend to reflect that the expanded economy, whether it continues to expand or not, is here to stay."

EDITORIAL STATEMENT
*The Wall Street Journal.*

"The trouble is not with the typewriters nor even with the words they make; the trouble isn't even with the men who make the words. It lies, we think, with men who pay undue attention to what other foolish men have to say. *Homo* is not nearly so sapient as he thinks."

PAUL KAYSER
*President, El Paso Natural Gas Company.*

"[There are 8,000 independent natural gas producers in the United States.] It is definitely a competitive business. The market price is established by the law of supply and demand. Any move to restrict the price received is bound to have a detrimental effect on the future supply."

ROGER M. BLOUGH
*Chairman of the board, United States Steel Corporation.*

"Research, in the last analysis, offers the only road to finding out how to produce more and better goods cheaper. And finding out how to produce more and better goods cheaper is the proven way of guaranteeing more and better jobs and wages—contractual devices to the contrary notwithstanding."

BERNARD M. BARUCH
*Economist.*

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CHARLES F. PHILLIPS
*President, Bates College.*

"Let us spend more time—in our offices, stores, conferences, and trade association meetings—improving our operations and less time trying to curb our competitors. Not only will individual companies be better off, but so will society. If America wants to continue its long-time development toward a rising standard of living, we need to encourage more, not less, competition."



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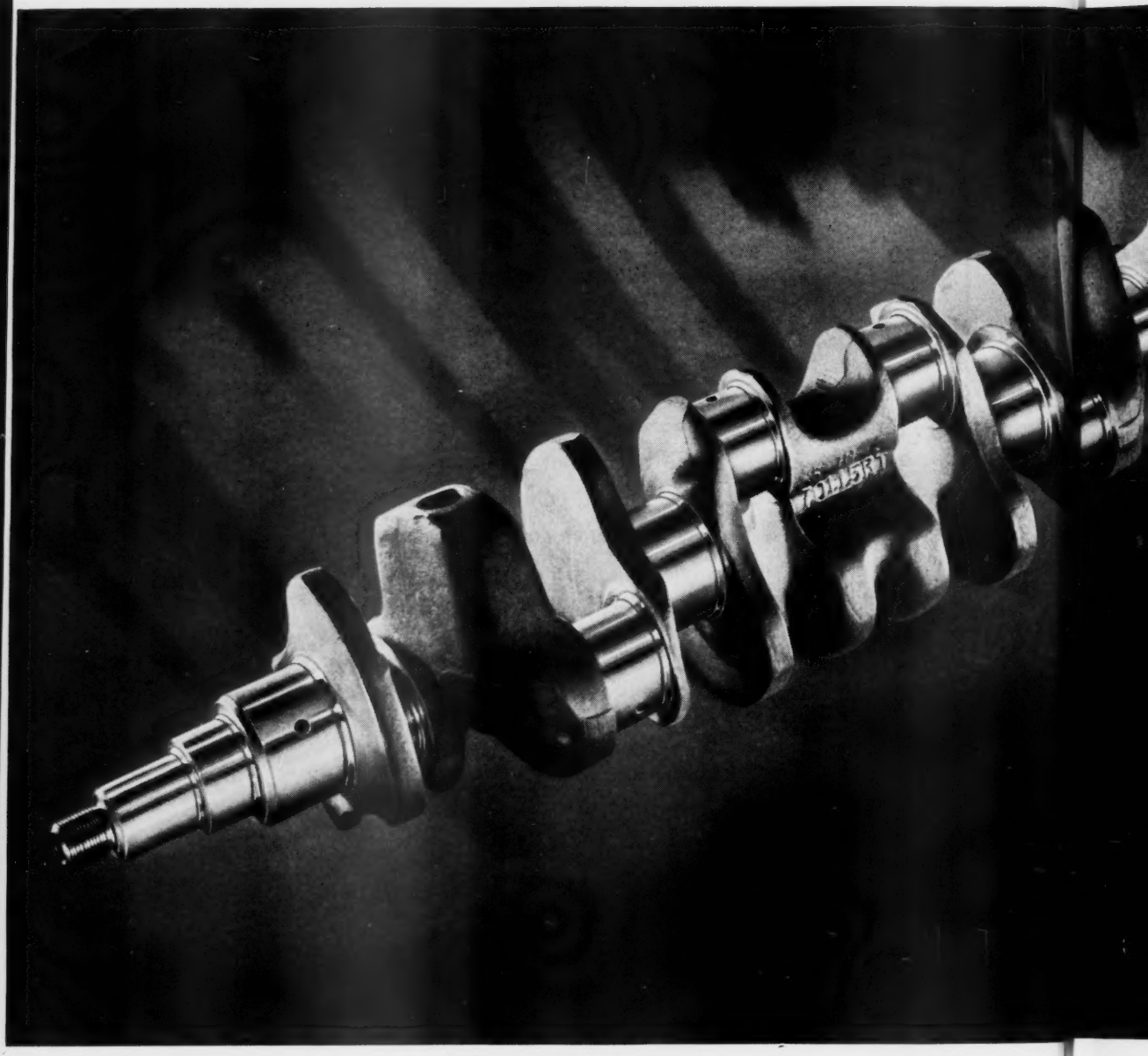
# *A truck engine needs*



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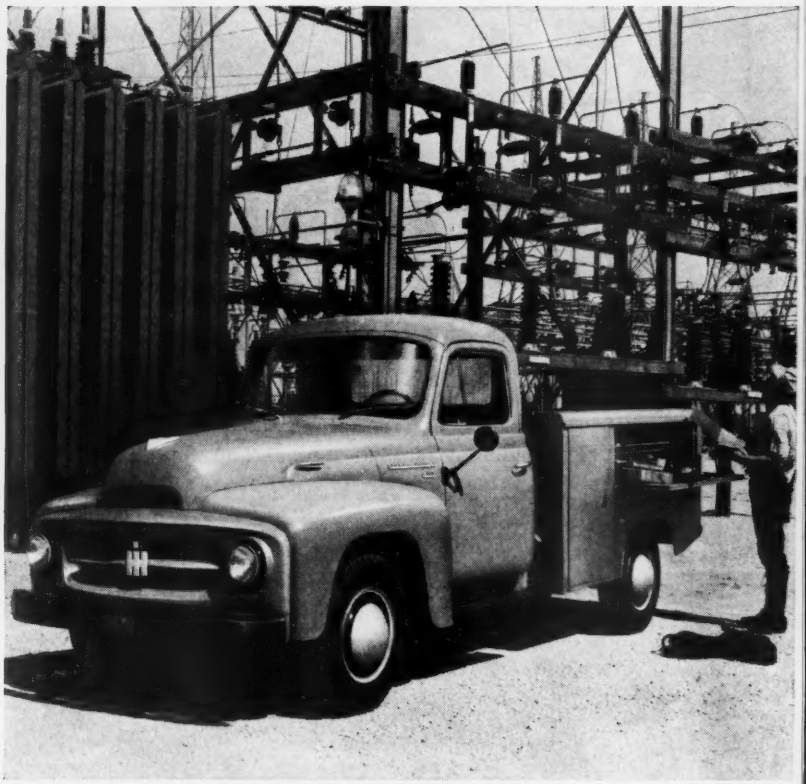

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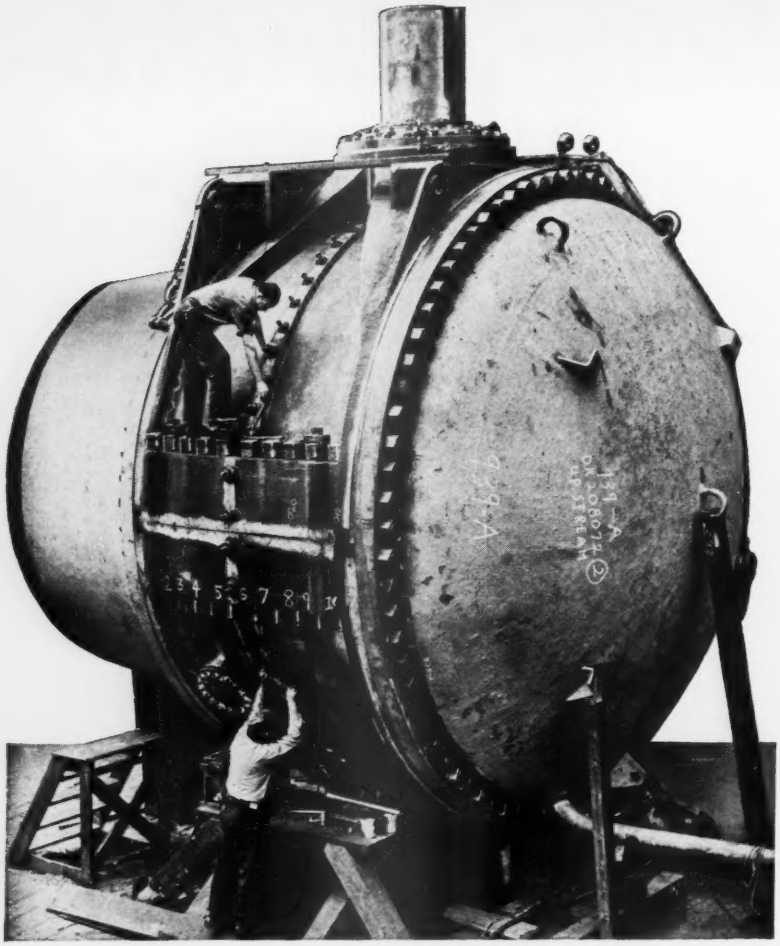

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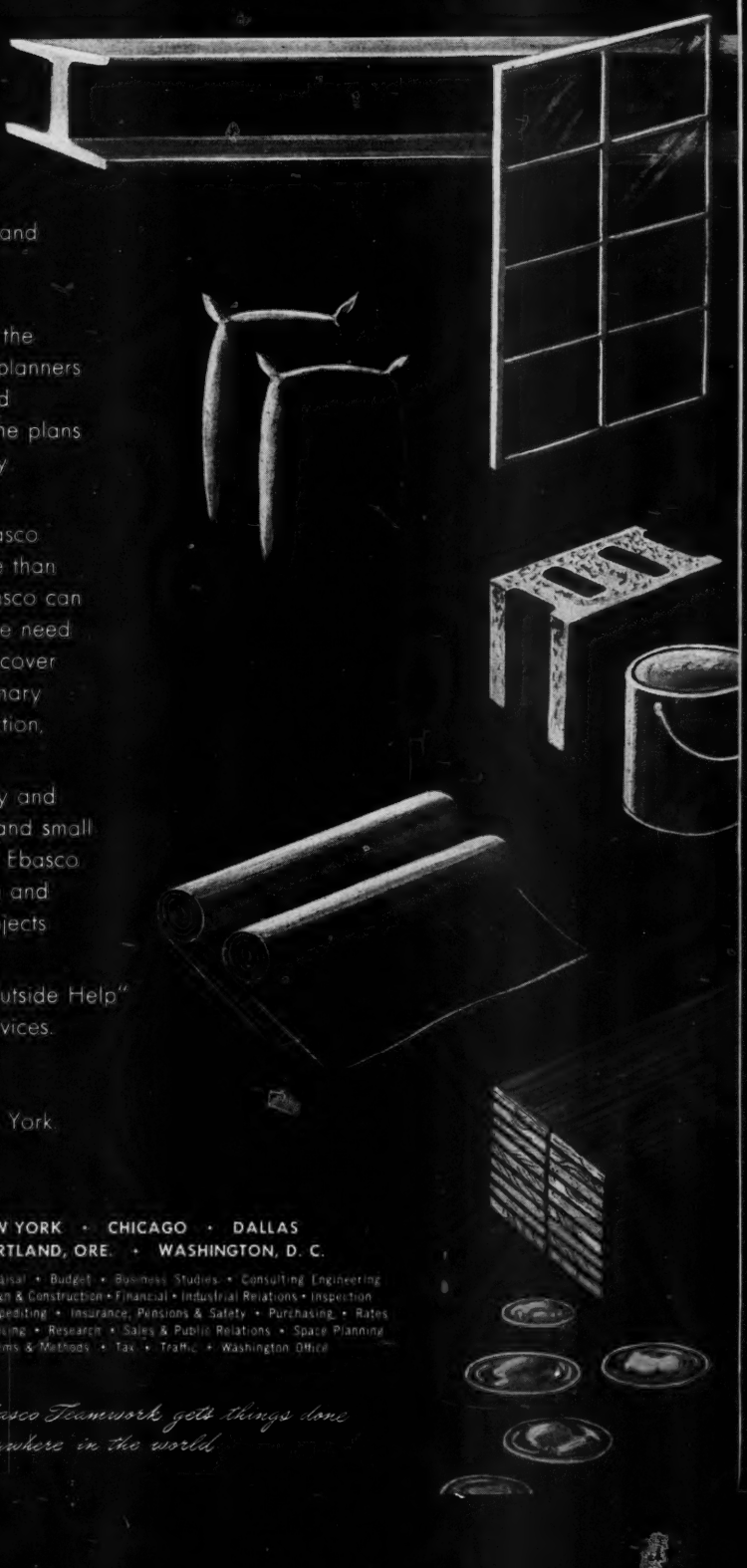

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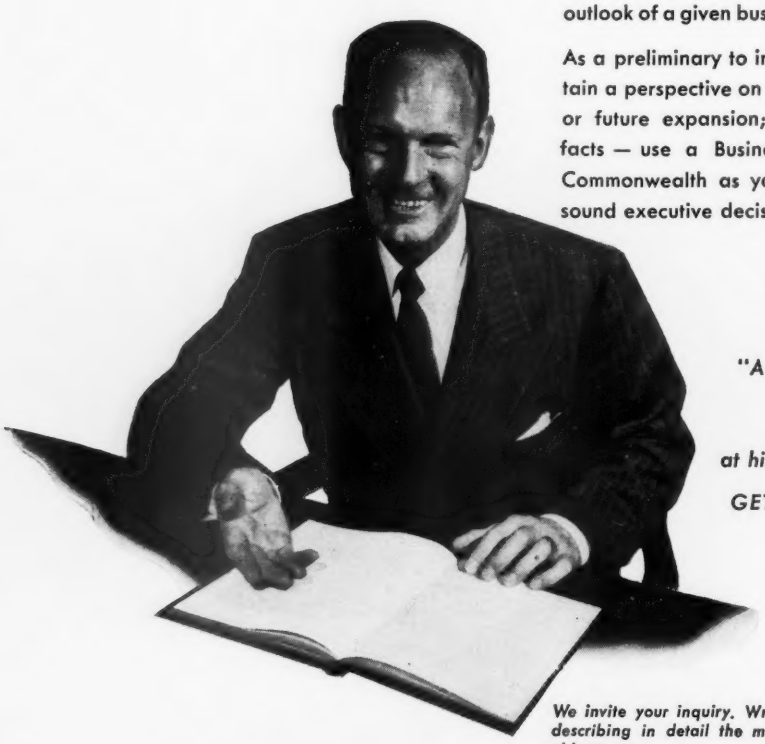

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## JUNE-JULY

| | | | |
|---|---|---|---|
| **Thursday—23**<br>*American Society of Mechanical Engineers ends 5-day semiannual meeting, Boston, Mass.* | **Friday—24**<br>*American Society for Engineering Education ends 4-day annual meeting, State College, Pa.* | **Saturday—25**<br>*National Homewares and Home Appliance Exhibits will be held, Atlantic City, N. J. July 11-15.* ***Advance notice.*** | **Sunday—26**<br>*American Society of Testing Materials begins annual meeting, Atlantic City, N. J.* |
| **Monday—27**<br>*American Nuclear Society begins annual meeting, State College, Pa.* | **Tuesday—28**<br>*International Electrotechnical Commission begins meeting, London, England.* | **Wednesday—29**<br>*Canadian Electrical Association ends 2-day annual convention, Vancouver, British Columbia, Canada.* | **Thursday—30**<br>*New York State Motorbus Association begins annual summer meeting, Lake Placid, N. Y.* |
| **JULY**<br>**Friday—1**<br>*American Home Economics Association ends 4-day meeting, Minneapolis, Minn.* | **Saturday—2**<br>*Southeastern Gas Association will hold short course in gas technology, Raleigh, N. C. July 18-Aug. 13.* ***Advance notice.*** | **Sunday—3**<br>*American Gas Association will hold board of directors meeting, Denver, Colo. July 29.* ***Advance notice.*** | **Monday—4**<br>*American Trade Association Executives will hold meeting, Mackinac Island, Mich. Aug. 1-3.* ***Advance notice.*** |
| **Tuesday—5**<br>*Southeastern Electric Exchange, Personnel Administration Section, will hold meeting, Roanoke, Va. Aug. 11, 12.* ***Advance notice.*** | **Wednesday—6**<br>*American Institute of Electrical Engineers will hold Pacific general meeting, Butte, Mont. Aug. 15-19.* ***Advance notice.*** | **Thursday—7**<br>*American Bar Association will hold annual meeting, Philadelphia, Pa. Aug. 22-26.* ***Advance notice.*** | **Friday—8**<br>*National Association of Railroad and Utilities Commissioners begins executive committee meeting, Chicago, Ill.* |

*Courtesy, Pacific Telephone & Telegraph Company*

"Prospectors of Public Service"

Public Utilities
FORTNIGHTLY

VOL. 55, NO. 13 JUNE 23, 1955

# An Economic Appraisal of the Private Electric Utility Industry

Here is an impressive survey of various economic indicia which indicate that continued adherence to original cost concepts has produced an end result which is unrealistic in the light of actual developments.

BY C. P. GUERCKEN*

*Foreword*

ONE of the most important functions of management is the pricing of goods and services. In a free economy, these prices reflect economic changes that take place from time to time, and management is free to set them at levels which encourage maximum market development at a profit. The record shows that the unregulated portion of American business had done this effectively even in a period of extreme inflation.

With respect to prices in the utility field, the record also shows that never in the history of human accomplishment have people obtained so much for so little, largely because most of the benefits of progressive managerial technique and the "progress of the art" have been handed to the consuming public. This has come about, in the main, through the mechanics of a regulatory process that is completely unrealistic

*Assistant to vice president, Ebasco Services Incorporated, New York, New York. For additional personal note, see "Pages with the Editors."

in light of the nation's inflated economy.

Unless cognizance is soon taken of the economic facts of life and their application to public utilities, irreparable damage may be done to an industry which is vital to the nation's economy, and it is inevitable that the ultimate public interest will suffer.

The purpose of this article is to show that the continued regulatory adherence to the original cost concept, as practiced by most commissions in the rate-making process, has produced an "end result" answer that is wholly unrealistic in the light of the severe inflation that has taken place. Considering what the country has at stake in the continuing expansion and unlimited availability of electric power, it is clear that the financial well-being and sound future growth of the private electric utility industry is everybody's concern and the interests of consumers and investors are identical. The suggested remedy to the above problem would cost the average residential customer about five cents a day, or an amount which is insignificant by all reasonable standards of fairness.

It should be noted at the outset that the proposals described in this article are for rate-making purposes only. Consequently, it should not be inferred that the corporate books of account should be restated in terms of present values or that any other accounting adjustments should be made. Furthermore, the study deals with the private electric utility industry as a whole and, consequently, as far as individual company situations are concerned, there will be exceptions to conclusions reached in this article.

Finally, while the article deals specifically with the electric utility industry, the same economic reasoning and conclusions are equally applicable to gas distribution companies, natural gas pipelines, telephone and transportation utilities, and, in fact, to all public service industries.

### *Regulation, As Practiced, Is Not a Substitute for Competition*

The statement has frequently been made, both by courts and commissions, that regulation is to the utilities what competition is to the unregulated segment of industry. That this is a fallacy is witnessed by the fact that while competition of the market determines the level of revenues for commercial and industrial enterprises, regulation determines the maximum level of utility operating income by its relationship to an investment rate base. The fairness and adequacy of this return is often measured by a most imperfect yardstick; namely, the current cost of money. Therein lies one of the fundamental weaknesses of utility regulation, especially when the current cost of money is applied to an historical cost rate base. While the cost-of-money yardstick may have had some limited merit in periods of stable price levels, under today's conditions of inflation and artificially low money costs the end result has been that the utility industry tends to overstate, from an economic point of view, its already inadequate income. Under the sheltering protection of accounting regulation, based as it is primarily on original cost, much utility property is being taken without adequate compensation—and no one seems to care.

### *An Analysis of Electric Utility Earnings And Rate of Return*

In order to determine the level of true economic earnings, it is essential that

current earnings be matched against current value of the property. One of the inequities of original cost regulation is that current earnings are matched against an historical rate base wherein dollars of a much earlier, and more valuable, "vintage" are combined with dollars having only half the purchasing power of the money committed earlier.

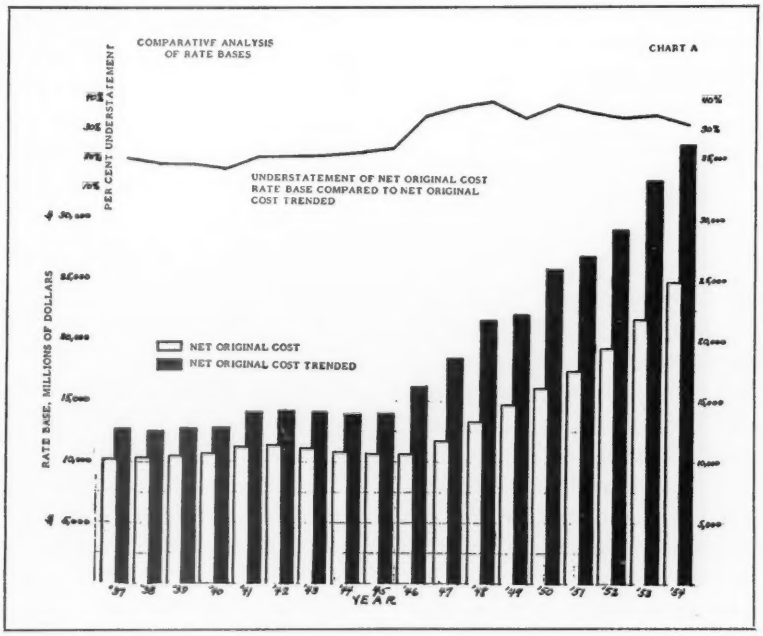
The method of analysis used to determine "real" economic earnings of the industry was to reprice (for rate-making purposes only) the plant account of the class A and B electric utilities from 1937 through 1954. This was done by applying the appropriate Handy Whitman Index of Public Utility Construction Costs to each year's gross additions to plant and then correcting these annual additions by the appropriate mortality curves in order to obtain the surviving plant in each year of the period under review. The historical relationship of reserve to plant at original cost was used in computing the trended original cost rate base. In addition, there was added in each instance an amount for working capital, consisting of materials and supplies and cash, which was computed on the basis of forty-five days' operating expenses, excluding purchased power expense.

### *Rate Bases*

Two possible rate bases are shown on Chart A (this page):

(a) The existing depreciated original cost rate base as calculated from the balance sheet of the private class A and B utilities, and,

(b) A trended original cost rate base depreciated and priced at the average


COMPARATIVE ANALYSIS OF RATE BASES
CHART A
PER CENT UNDERSTATEMENT
UNDERSTATEMENT OF NET ORIGINAL COST RATE BASE COMPARED TO NET ORIGINAL COST TRENDED
RATE BASE, MILLIONS OF DOLLARS
NET ORIGINAL COST
NET ORIGINAL COST TRENDED
YEAR

level of materials, equipment, and labor costs experienced during each year for the period 1937-54, inclusive.

The growing effects of inflation are nowhere better illustrated than in the progressive spread between the two rate bases from 1937 through 1954. While in 1937 the electric utility industry's rate base was understated by 19 per cent, with respect to the trended original cost, by 1954 this understatement increased to 31.5 per cent.

Another important factor that emerges from this analysis of rate bases is that a very substantial amount of inflation has taken place since 1950 (or the mid-point in the postwar construction period) and that, consequently, the value of plant put into service between 1946 and 1950 has already suffered a large amount of capital erosion.

Of the total plant in service today, $6.887 billion was installed between 1946 and June 30, 1950. In 1954, the value of this plant, when repriced at the average 1954 price level, amounted to $9.479 billion, or an increase of 13.76 per cent. Conversely, the plant installed in the earlier period had, by 1954, suffered a depreciation of 27.3 per cent in capital values.

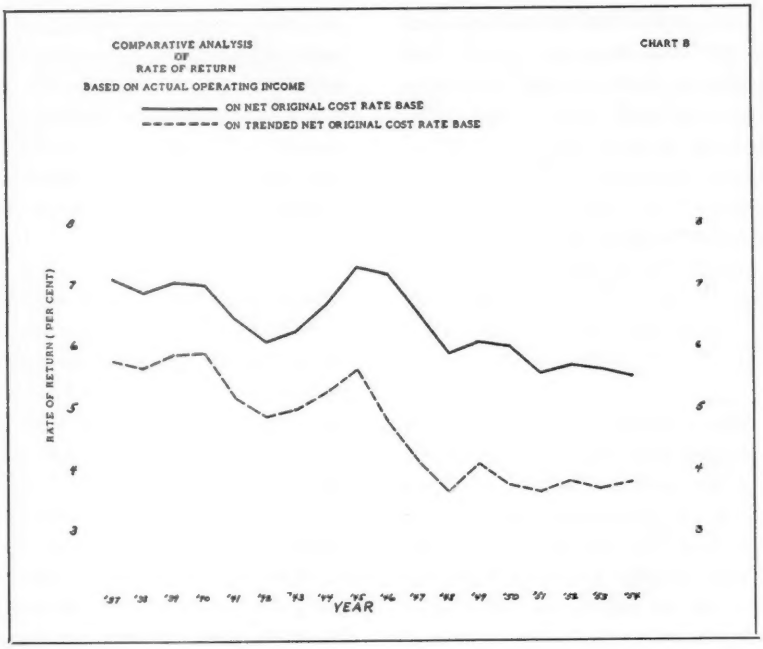
EVEN with the plant installed from July 1, 1950, to the end of 1954, in the amount of $11.626 billion, were it repriced at the 1954 average level of prices, it would cost $12.469 billion, or an increase of 7.2 per cent. In terms of the original cost rate base this means that it suffered a loss of capital values of 6.8 per cent, or a substantial amount considering the very short period. To look at it from a somewhat different angle, had the industry been allowed to earn at the rate of 6 per cent on the difference, it would have been some $50,000,000 better off in terms of income.

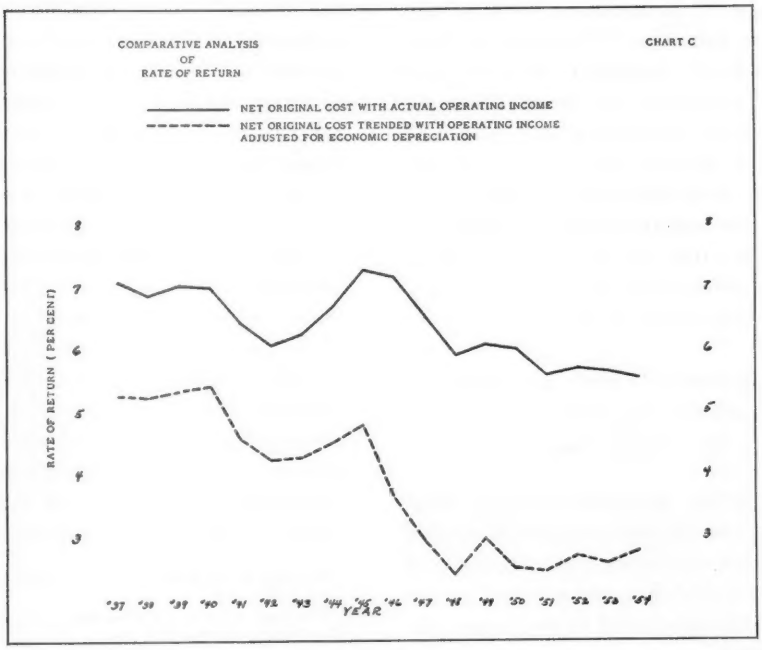
This analysis, it is believed, should answer the frequently heard and erroneous contention (generally made by the proponents of original cost) that any utility that has added enough plant since the war at inflated prices will somehow achieve a fair value rate base in the not too far distant future. The fact of the matter is that the industry, having more than doubled its investment from 1946 through 1954, has only a slightly smaller understatement of the rate base today than it did in 1946. In terms of depreciated trended original cost, the net original cost rate base was understated, in 1954, by 31.5 per cent while in 1946 the understatement amounted to 33.5 per cent, or a decrease of only two percentage points. Such have been the destructive effects of inflation.

### *Rate of Return*

ON Chart B (page 743) are shown the rates of return earned by the class A and B utilities on a depreciated original cost rate base and a depreciated trended original cost rate base. It should be noted that operating income in this case is actual book income. While the trend of returns goes back to 1937, the following analysis concerns itself primarily with the period of expansion subsequent to World War II.

One of the most significant disclosures of this chart is the decrease of both rates of return, both from 1937 to 1954 and from 1945 to 1954, inclusive. It will be seen that the return on net original cost dropped from 7.25 per cent in 1945 to 5.50 per cent in 1954, or a decrease of 1.75 percentage points. The incremental


COMPARATIVE ANALYSIS
OF
RATE OF RETURN
BASED ON ACTUAL OPERATING INCOME
CHART B
ON NET ORIGINAL COST RATE BASE
ON TRENDED NET ORIGINAL COST RATE BASE
RATE OF RETURN ( PER CENT)
YEAR


COMPARATIVE ANALYSIS
OF
RATE OF RETURN
CHART C
NET ORIGINAL COST WITH ACTUAL OPERATING INCOME
NET ORIGINAL COST TRENDED WITH OPERATING INCOME
ADJUSTED FOR ECONOMIC DEPRECIATION
RATE OF RETURN ( PER CENT)
YEAR

return on the additional investment was only 4.20 per cent, or a rate which, had it been applied even to a "value" rate base, should be considered totally inadequate. It is important to note that the return of 7.25 per cent, shown in 1945, was the result of intensive and abnormal utilization of assets constructed prior to the war and with no substantial amounts of construction during the war. This is certainly not the long-term pattern of earnings which the electric utility industry has experienced.

With regard to the rate of return on trended original cost, the decline has been from 5.59 per cent in 1945 to 3.79 per cent in 1954. The incremental return over this period was 2.66 per cent, or a rate which is substantially less than bond interest. In order to restore income to a 6 per cent return on a trended original cost rate base, electric operating revenues would have to be increased by $1.67 billion, or an increase of 27.6 per cent above the 1954 level. Applied to the residential group of customers the average price per kilowatt-hour would have to be increased from 2.69 cents to 3.43 cents, or the approximate level prevailing in 1945. That this increase is modest enough is witnessed by the fact that the average residential customer would pay only 5 cents a day more on his electric bill.

### *Rate of Return with Both Rate Base and Depreciation Accruals Based on The Value Concept*

WHILE the foregoing analysis dealt with net original cost and net trended original cost rate bases, the following will consider, in addition, the rates of return which would be earned if the annual depreciation accruals, based on historical rates but adjusted upwards to correct for inflation, were applied in the determination of electric operating income. As previously noted, such adjustment would be only for rate-making purposes and, consequently, there would be no adjustment on the books of account.

AN earlier United States Supreme Court decision[1] specifically allowed the use of value in depreciation accruals, but the Hope Case disallowed its use.[2] This case was decided in 1944. The Handy index for utility construction was 244 in that year. By July 1, 1954, it had risen to 490, or more than double that of the earlier period. The economic background of 1944, under wartime controls, was entirely different from that prevailing today. It can hardly constitute a valid or equitable yardstick for determining the end result under present conditions. Consequently, it is the opinion of a number of lawyers who have made an intensive study of the economic and legal aspects of this matter that the Hope Case has not finally determined the question whether in inflationary times the allowance in a rate case for depreciation expense might properly be sufficient to make allowance for the changed value of the dollar. Other United States Supreme Court cases have spoken of the necessity of the allowance for depreciation being sufficient to keep the investment unimpaired. In spite of these attempts to "legislate economics," the only way, in the long run, that the consumption of property can be measured in rendering service to the public is by the use of de-

[1] United R. & Electric Co. *v.* West, 280 US 234, PUR1930A 225.
[2] Federal Power Commission *v.* Hope Nat. Gas Co. (1944) 51 PUR NS 193.

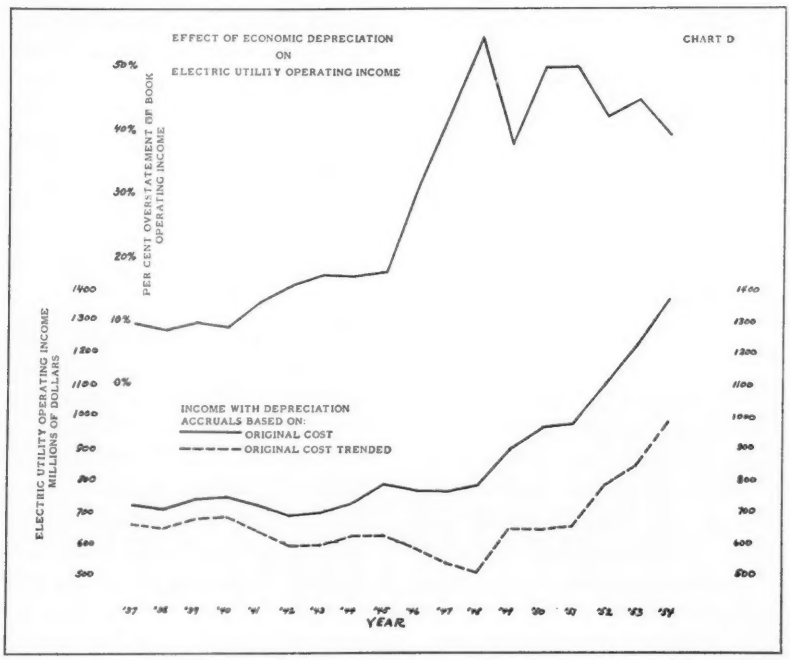
preciation which measures the true economic costs of doing business. Both Britain and Sweden, with their government-owned telephone service, have acknowledged this fact.

THAT the rates of return have been unconscionably low can be seen from Chart C (page 743) which shows the trends for net original cost rate base (with economic depreciation) and the net trended original cost rate base from 1937 through 1954.

The return on the trended original cost rate base dropped from a war peak of 4.76 per cent in 1945 to 2.73 per cent in 1954. The incremental return was 1.45 per cent during this period. In order to restore earnings to a 6 per cent rate of return, electric operating revenues would have to be raised by 39.2 per cent over the 1954 level. Under such an increase, the residential customer would have to pay an additional 7 cents a day while his average cost per kilowatt-hour would increase from 2.69 cents to 3.74 cents.

### *An Analysis of Economic Income*

FROM the foregoing considerations it will be seen that not only have the economic rates of return been totally inadequate, but, at the same time, book income does not accurately depict the economic facts affecting the business. This, of course, arises from the fact that for rate-making purposes the annual depreciation allowance has been computed on a basis of original cost rather than an economic or present value basis.



What is depreciation? In this connection it is of interest to consider what the Federal Power Commission and the National Association of Railroad and Utilities Commissioners have to say about it in the chapter of definitions in the "Uniform System of Accounts." It says in part:

> "Depreciation," as applied to depreciable electric plant, means the loss of *service value* not restored by current maintenance, incurred in connection with the consumption of prospective retirement of *electric plant* in the course of service from causes which are known to be in current operation and against which the utility is *not protected by insurance*. (Italics supplied.)

It should be noted that the whole definition is geared to value and property. Even the statement about insurance points the way to present value rather than to historical cost, for it is a well-known fact that prudent businessmen have increased their insurance coverage to correct for the effects of inflation on property values. Yet, in spite of all that, many regulatory commissions have chosen to call value cost and, in effect, to amortize nominal dollars rather than to follow the clear intent of the definition which calls for the depreciation of property under a value concept.

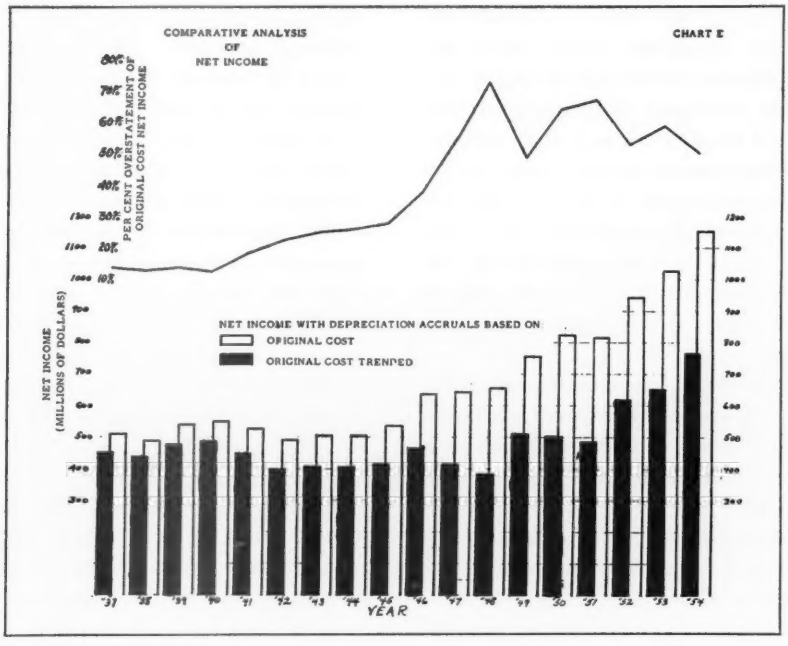
On Chart D (page 745) is shown the electric utility operating income from 1937 through 1954, first, as it actually is per books based on original cost annual depreciation accruals; and, second, economic income with depreciation accruals based on a trended original cost rate base.

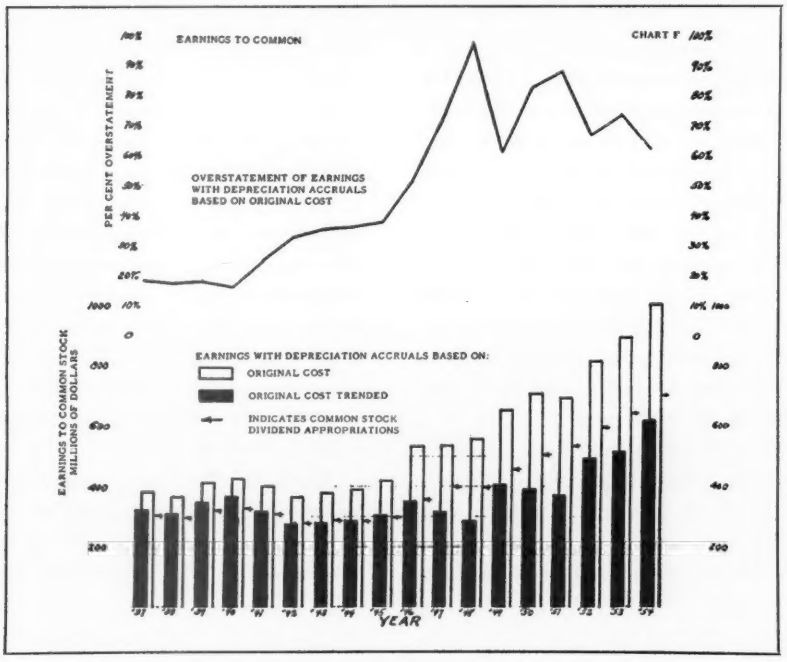
The significant feature of this chart is, of course, the growing spread in the over-statement of income between operating income based on original cost and income based on the recovery of economic costs. The growing effect of inflation and the patent weakness of original cost accounting are nowhere better shown than in the increasing "spread" between 1937 and 1954.

While in 1937 the excess of income based on net original cost over trended original cost amounted to $60,000,000, or 9.1 per cent, by 1954 this had grown to $385,000,000, or an overstatement of 39.1 per cent, an amount which is far larger than the retained earnings for that year. The total overstatement of operating income was $3.40 billion, or 28.5 per cent, during the eighteen years under review.

On Chart E (page 747) is shown the trend of net income, both on original cost and trended original cost. As one would expect, the overstatement of net income on original cost is even greater percentage-wise than in the case of operating income. Thus, in 1937, the overstatement of net income on a book basis, in relationship to a trended original cost net income, amounted to $60,000,000, or 13.4 per cent. By 1954 the overstatement amounted to $385,000,000, or 50.1 per cent.

On Chart F (page 747) is shown the trend of the amount available for common under the two bases of original cost depreciation and economic depreciation accruals. It will be seen that while in 1937 the overstatement of net original cost over trended original cost was 18.6 per cent, by 1954 this had risen to 62.2 per cent. This again shows the tremendous effect of inflation and the need for a more reasonable level of earnings which are con-


COMPARATIVE ANALYSIS
OF
NET INCOME
CHART E
PER CENT OVERSTATEMENT OF ORIGINAL COST NET INCOME
NET INCOME (MILLIONS OF DOLLARS)
NET INCOME WITH DEPRECIATION ACCRUALS BASED ON:
ORIGINAL COST
ORIGINAL COST TRENDED
YEAR


EARNINGS TO COMMON
CHART F
PER CENT OVERSTATEMENT
OVERSTATEMENT OF EARNINGS
WITH DEPRECIATION ACCRUALS
BASED ON ORIGINAL COST
EARNINGS TO COMMON STOCK
MILLIONS OF DOLLARS
EARNINGS WITH DEPRECIATION ACCRUALS BASED ON:
ORIGINAL COST
ORIGINAL COST TRENDED
INDICATES COMMON STOCK
DIVIDEND APPROPRIATIONS
YEAR

sistent with current economic conditions.

Another important factor which this chart discloses is that, had economic depreciation been used, dividends paid since 1947, on a trended original cost rate base, would have been in excess of the amount available for common. From 1937 through 1946, while no substantial amount of dividends were paid out in excess of the amounts available for common, yet, by the same token, nothing was set aside to surplus.

The trend of annual accretions to surplus is shown on Chart G (page 749), and from it can be seen that capital, in the economic sense, has been steadily dissipated because of regulatory accounting conventions and the insistence that original cost is the only measure of the consumption of capital.

### *The "Free Market" Adjustment To Inflation*

INDUSTRIAL enterprises, operating in a free competitive market, have been able to adjust themselves to the mounting pressures of inflation and to recover the economic costs of capital. This has not been the case with the electric utility industry.

In spite of the deficiencies of the tax law which permits the recovery of only original cost, U. S. industry as a whole has been able to price its goods and services at a level where substantially all the costs of "doing business" are recovered from the ultimate consumer.

On Chart H (page 751) are shown the annual retained earnings and depreciation accruals of U. S. industry as a whole, of the class A and B electric utilities, and a plotting of the gross national product. This was done in order to indicate the relative growths of the internal sources of capital with the over-all growth of the national economy. All these items are shown in terms of current dollars and are indexed on the basis of 1937-41 = 100. It is believed that, for all practical purposes, these relationships are sufficiently accurate to permit the derivation of meaningful conclusions. Since there have been no shortages of power it is safe to assume that the electric utilities have grown at least as fast in terms of physical capacity as the rest of the American industry. While the internal sources of capital are in terms of current dollars, so is the gross national product and, hence, apart from any difference in the values of the deflators which would be used to bring both functions to dollars of constant purchasing power, these series are reasonably comparable as measures of growth.

THE relationship of depreciation and amortization to GNP shows that industry as a whole, while still below the index of GNP, is beginning to approach it. It is significant that while the industrial depreciation index "tracked" that of the utilities until 1946, it is with the rise of inflation beginning with 1946 that industry as a whole, with its flexible depreciation policies and shorter-lived plant, outstripped the index of utilities and began to approach the GNP index in 1954. On the other hand, the utility index, which was 81 index points behind the GNP index in 1946, fell behind to the extent of 138 index points in 1954.

As to the 1946-54 postwar average, it should be noted that while the index of GNP amounted to 297, that of all industries stood at 233, or 21.5 per cent lower. The equivalent figures for the electric utility industry amounted to an index of

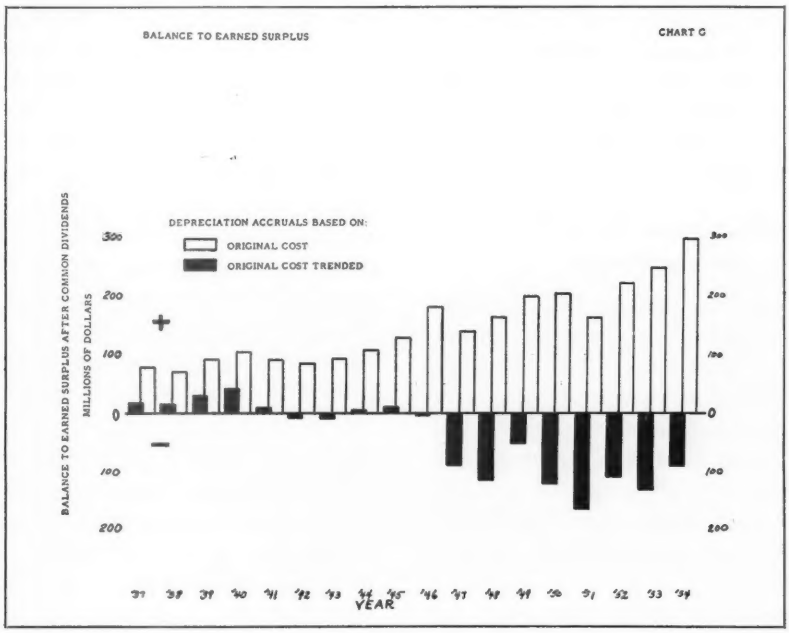
176, which was 40.7 per cent lower than the GNP index.

It is the ability of industry as a whole to set aside sufficient retained earnings from adequate revenues that distinguishes it from the private electric utilities. In fact, any deficiency in depreciation accruals has been compensated by increasing retained profits. Thus, while the average of retained profits for industry as a whole stood at index of 645 from 1946 through 1954 compared to an index of 297 for the GNP, that of the utility industry amounted to only 237 for the same period.

The last chart in this series, which shows the total sources of internal capital, demonstrates the fact that all industries have, through their dynamic pricing policies, overcome the effects of inflation. In fact, since 1946 this segment of the economy has been consistently ahead of the GNP. On the other hand, the private electric utility industry has lost ground. In 1946 the utilities lagged by 63 index points while by 1954 this had increased to 108 points on the index scale. It is significant that for the period from 1946 through 1954 the all-industry index was 21 per cent above the GNP while electric utilities were 36 per cent below.

The foregoing analysis of the situation of the electric utilities may well lead to the question of why, if the industry is facing problems stemming from the application of original cost regulation, both the institutional and individual investor is still willing to commit his funds to that business.

There are several possible answers to this question. Among these are:



1. The investor currently entering the utility market does so in the expectation that inflation has run its course and that, as a consequence, he will fare better than the investor who entered the market in 1939. In other words, it is the philosophy of "It can't happen to me."

2. The present investor is interested primarily in current yields and, to a lesser degree, in longer-term capital appreciation.

3. The relative stability of the utility industry makes its securities attractive to those investors who seek primarily safety of income and who, as a consequence, are prepared to accept nominal dollars rather than dollars which reflect inflation.

4. The erroneous belief that public regulation somehow brings a degree of investment security.

An important corollary of the foregoing is that even if a modest amount of relief can be obtained under the regulatory process, both the present and the past investor will receive only some of the benefits which are justly theirs.

### *The Case against the Cost-of-Money Theory*

THE principal weakness of the regulatory process has been the almost complete reliance on the cost-of-money theory. Even those jurisdictions that have given some recognition to the so-called rate of return have done nothing more than "dress up" the bare-bone costs of money to a minimum point that would conceivably pass the scrutiny of a judicial review.

The fact of the matter is that the cost of money, as frequently computed, is so low (even to a utility with an indifferent earnings record) that even a fairly substantial increment over and above the straight cost of money would be inadequate to give a utility the earnings needed to cover all the economic costs of doing business or to reflect the value of service supplied to the public.

The industry, the commissions, and the courts should face squarely the fact that the infirmities of the cost of money theory, and its method of application, make it a confiscatory yardstick of regulation. Furthermore, there is no reason to think that time will cure this situation. It is the considered judgment of experts in the field of monetary policy that, because of the tremendous national debt, money rates will remain low and that, consequently, money will continue to be cheap to corporations.

One of the principal weaknesses of the cost-of-money theory, as it is currently applied, is that it does not measure the fairness of the allowable return to the existing investor who is irrevocably committed to the enterprise in dollars of totally different purchasing power. The cost-of-money theory does not do that since it can be fair only to the investor about to enter into the business with dollars of much lower purchasing power. In effect, the application of the cost-of-money doctrine results in confiscation of utility property underwritten by the older investors.

ANOTHER grave defect is that in periods of prosperity, such as the one which the national economy has enjoyed since World War II, money rates have tended to decline and with them, of course, the allowable return to utilities. Consequently,

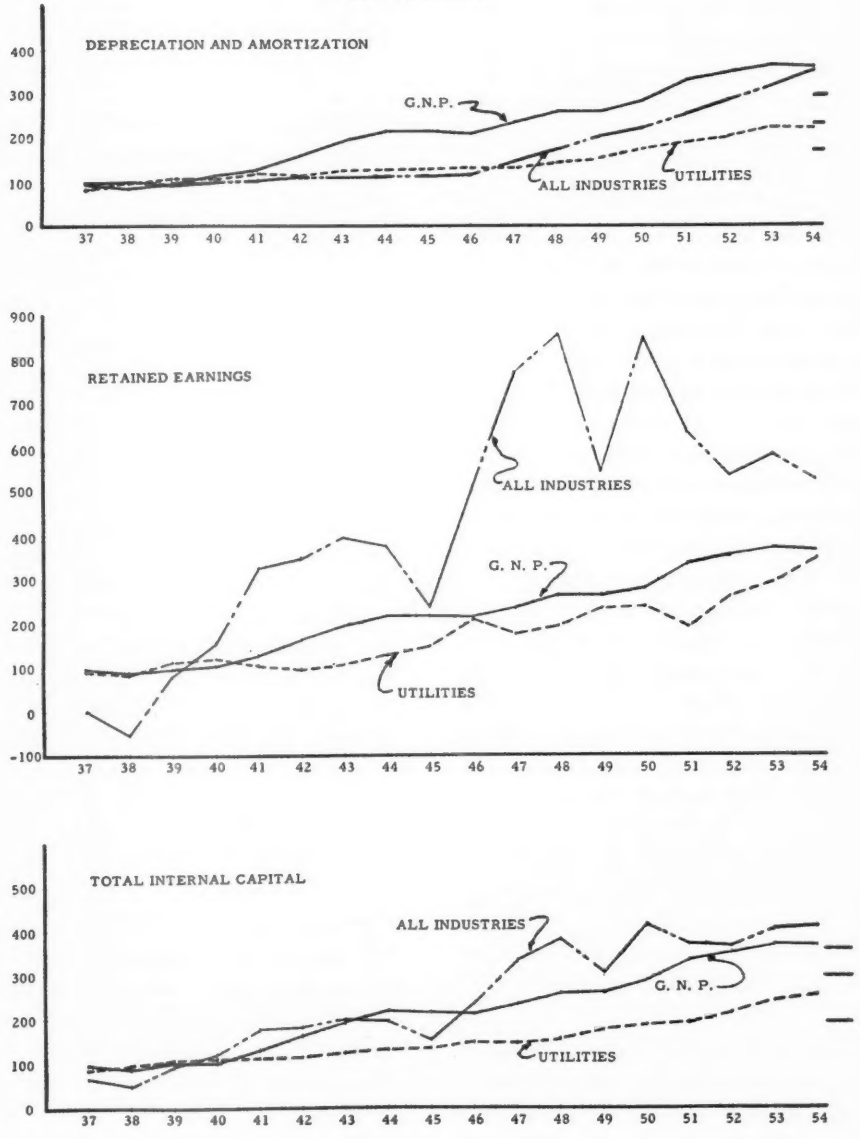
CHART H

INTERNAL SOURCES OF CAPITAL - ALL INDUSTRIES AND UTILITIES

VS.

GROSS NATIONAL PRODUCT

INDEX: 1937-41=100



the application of the cost-of-money theory by many commissions has tended to depress earnings at a time when customers are best able to pay for utility service. The end result of this situation is that the utility industry has been unable to participate in the general prosperity of the economy or to set aside sufficient funds for a "rainy day." Conversely, under the cost-of-money theory, in a period of recession and of falling stock market price, the resulting increase in the earnings-price ratios and the consequent increase in the allowable rate of return may be of no benefit to the utility since it may be impractical, from a business point of view, to raise rates in periods of depression. This was amply demonstrated during the 1930's.

Since the cost of money is based primarily on the market appraisal of securities, a substantial infirmity is introduced into the so-called "yardstick" by which utilities have to measure their earnings. This condition arises from the fact that, generally speaking, the market's appraisal is confined to a small percentage of the total stock outstanding. In other words, the valuation of all the stock is based on the valuation of a few hundred shares daily whereas the total capitalization of a particular utility may run into several million shares. It should be noted that with such companies as the Consolidated Edison Company of New York and the American Telephone and Telegraph Company, the turnover in 1954 amounted to around 5 per cent of the stock outstanding.

FINALLY, the cost of money is based on earnings, and to that extent it should not be forgotten that the Supreme Court itself condemned the use of earnings criteria as a method of setting a new level of earnings as being circular in nature and hence self-defeating in purpose and effect. Yet, in spite of all this, the cost-of-money component is still considered by many as being the only factor involved in the determination of the rate of return.

The foregoing analysis illustrates the fact that the cost of money (a term which has become almost identical with most commissions' thinking as the rate of return) is a "yardstick" of far less than 36 inches. It would appear that the cost-of-money approach as a means of obtaining fair and adequate earnings will not produce results in keeping with the needs of the times. Present regulatory thinking seems to be effectively insulated from all consideration of giving the old investor already committed some relief from the inroads of inflation or from reflecting in the level of earnings of the utility industry the value of service it supplies to the public. The only hope of relief that the utilities have lies in the adoption of a fair value rate base. Through it the fundamental weaknesses of the cost-of-money theory can be partially overcome while, at the same time, some recognition can be given to the value of service supplied by the nation's private electric utility industry.

### *Present Value—A Fair and Equitable Solution*

THE increasing burden of national debt and the concomitant policies of cheap money have both tended to produce inflation or loss of purchasing power of the dollar. In terms of goods and services, the dollar today is worth only 53 cents compared to the 100-cent dollar of 1939.

Unregulated industry, or that portion

of the American economy which has its prices set by the market place concept of *value,* has been able to increase its prices accordingly and thus place the burden of its inflated costs squarely on the shoulders of the consumer.

The consumer, in turn, because of the higher wages and greater availability of credit, has been able to purchase these goods and services in ever-increasing amounts. That there has been no "buyer's strike" is witnessed by the fact that the gross national product, or the sum total of the nation's economy output in terms of constant 1947 dollars, has increased from $157.5 billion in 1939 to $306.6 billion in 1954, or an increase of 95 per cent. In the same period, total kilowatt-hour sales of the private class A and B utilities went up 223 per cent. The relationship of the two increases is significant in that it indicates the underpricing of electric utility service in relationship to the over-all economic price level. The extent of this underpricing is indicated by the fact that while food and clothing went up 130 per cent and 51 per cent, respectively, from 1939 to 1954, the cost per kilowatt-hour of residential electric service fell from 4 cents to 2.69 cents, or a decline of 32.7 per cent.

THE foregoing situation is, of course, the end result of applying the current low cost of money to an original cost depreciated rate base. There could be some justification if the historical cost of money were applied to a historical rate base, but to apply the present cost of capital to such a rate base is to compound an injustice and to sanction the taking of property without due process.

The impact of inflation on utility property is particularly severe. Since that property is long-lived, it means that the utility investor has committed his funds in periods when the purchasing power of the dollar was twice what it is today. Or to put it in other words, the investor of 1939 has, at this moment, twice the property for each dollar invested compared to the investor today.

The valuation of industrial plant is automatically set at the present value through the action of pricing policies of the free competitive market. Since market pricing is on a value basis, the plant of such industrial enterprises is also on a value basis. More often than not, in making a physical appraisal of an industrial plant for either sale or merger purposes, it is significant that the valuation is set on a trended original cost less depreciation basis using the current price levels.

Since, under utility regulation, the level of operating revenues is set by what is sometimes called the "cost-of-service" computation which includes a "fair" return on the property devoted to public service, the only way that an element of value can be injected into the price level of the utilities is by having a value rate base on which a fair return can be earned. In addition, in order to maintain the integrity of the property, depreciation allowances must be set at a point where the consumption of property (*i.e.,* loss in service value as defined by the FPC and NARUC), in terms of current dollars, is recouped.

TWO fundamentals of utility regulation have been almost forgotten. The first is that what is regulated by the commissions is property and not investment; and the second is that value is still the law of the land. The frequently quoted Hope

Case, which some people have erroneously construed as ending fair value, decided merely that a federal commission did not violate the federal Constitution if it fixed rates on the basis of net investment. The Hope Case does not govern the interpretation of a state statute requiring the consideration of value in the determination of a rate base. At the state level, 36 of the 42 states, where public utility laws provide for regulation of electric utilities, permit a demonstration of value for ratemaking purposes. In addition, four states have no specific legislation precluding a demonstration of value and presumably fair value evidence could be offered.

The language used in these state laws with respect to value findings varies from "shall consider evidence of present value" through "may consider evidence of present value" to "every fact which in its judgment may or does have any bearing on such value." It is unfortunate that, in view of such provisions, the industry has allowed its legal rights to go by default by strained interpretation.

EVEN where recognition of fair value has been accorded to individual companies the increases have been modest, amounting to only 10 per cent to 30 per cent above the net original cost rate base. Recently, such increases have tended to be the lower of the two figures mentioned. Considering that inflation, since 1939, has cut the purchasing power of the dollar in two, a 10 per cent increase in the original cost of the plant can hardly be considered fair value on any equitable basis. Another unsatisfactory element in the determination of fair value is that the annual depreciation accruals are based on original cost. Not only is there a lack of logic in this approach but, unless and until the annual depreciation accruals are also based on economic consideration, there will be an erosion of capital through the payment of dividends not fully covered by true earnings.

Within the last three or four years the inadequacy of the original cost rate base in terms of inflation has been recognized by a number of state court decisions.

While this affirmation of the fair value principle is a step in the right direction, the question can well be asked as to when will the regulatory system generally evaluate value with greater regard to purchasing power? Must there be drastic inflation wherein the dollar is arbitrarily devalued by legislative action? In such countries as France, Chile, Mexico, Brazil, and others, where inflation has reduced the purchasing power of currency to a fraction of former values, utilities (particularly in Mexico) have been permitted to revalue their plant account on a current cost basis. The question, of course, is how far does the course of inflation have to run in this country before some recognition is given to the fact that the purchasing power of the dollar is only a fraction of what it was fifteen years ago.

BOTH commissions and management must squarely face the issue that the present trend cannot continue without permanently impairing the financial health and stability of the public utility industry. Not only must there be an understanding of the problems of inflation, as they affect the industry, but also of the problems which each must face in its own field of activity.

# Reactor Insurance Risks Still Unsolved

*Atomic development for peacetime purposes already has run into a number of stubborn problems which have nothing to do,* PER SE, *with the technical aspects. One of these problems is the requirement of adequate insurance coverage. Public service facilities of all kinds must be adequately insured against all reasonable and foreseeable risks so as to protect the public in a continuity of service.*

By HERBERT M. BRATTER*

On the threshold of atomic power for peace the utility industry faces *inter alia* the important question of casualty insurance against claims from the general public in the event of a plant disaster. The problem is of a nature and magnitude never previously encountered. It is now being intensively studied by all concerned: the utilities and reactor builders, the insurance industry, and the Atomic Energy Commission. The problem has been brought to the fore by last year's legislation, opening the door part way for industry to develop and use the products of atomic energy.

The AEC itself has a 5-year reactor research program under way, one of the objects being improved safety devices. The results of the AEC program will be made available to private industry. Detroit Edison and Consolidated Edison have announced separate plans to erect nuclear plants while Babcock & Wilcox plan to make reactor equipment for sale to industry here and abroad.

A glance at the insurance problem discloses its impressive magnitude. While there has never been a fatality in the operation of the U. S. government's atomic program, the costly accident in 1952 at Canada's Chalk River atomic experiment

*Free-lance writer, resident in Washington, D. C.

station—described in the March, 1955, *Reader's Digest*—showed that accidents are possible. Given the nature of the risks, which are varied, the claims which might be brought against a private reactor station in a populated area potentially could be far beyond the capacity of a utility and perhaps of the insurance industry to meet. All signs point to the need for federal government participation in the insurance protection. But before legislation to that end can be introduced, some measurement of the insurance problem's dimensions must be essayed; and this is being done.

THE problem, as seen on Capitol Hill, was described in January by the then chairman of the Joint Committee on Atomic Energy, Representative Cole (Republican, New York), as follows:

> For its own part, the Congress now faces two problems of great importance for the future of the atomic power industry, and I hope it will lose no time in considering them. I refer to the problem of securing adequate insurance for private firms wishing to build atomic reactors, and the problem of providing adequate incentives for those willing to risk private moneys in this new field.
>
> Companies exploring the possibility of building atomic reactors have discovered that they are unable to obtain adequate insurance against the remote possibility of a major reactor accident, such as could conceivably result in the radioactive contamination of a large area. I emphasize that this danger is exceedingly remote. Our nation now has twelve years of experience in operating atomic reactors, and there has yet to be a single fatality—or indeed a serious injury of any kind—caused by a reactor breakdown. Yet in the unlikely event of a serious reactor failure, the resulting claims might come to huge sums, and it is easy to understand the reluctance of an insurance company to issue a policy against such contingencies.
>
> Most businesses can buy insurance against the greatest damage which their operations could incur. Other businesses take that possibility merely as one of the risks in doing business. In such cases, the companies assume the risk of normal losses for the possibility of making normal profits. I point out, however, that if an electric company owns and operates an atomic reactor, it would make a regulated profit while running the risk of incurring an abnormally large loss.
>
> I earnestly hope that the Congress, giving due regard to the views of the executive branch and representatives from private industry, will give early attention to this question. May it be, for example, that the government, in return for fair premiums, should take on part of this insurance burden? If so, how would we administer such a program from an actuarial standpoint? Would it be desirable for private insurance companies to secure reinsurance from the government? If so, what type of arrangement would be fair to both parties? Such questions are as difficult as they are important, and the Congress should lose no time in studying them.

THE matter of insurance was discussed by several witnesses during the Joint Committee's hearings in February and March. General Electric Company's vice

president, Francis K. McCune, expressed concern about the inability to obtain adequate insurance for atomic risks. That inability might impede adequate financing and widespread and rapid development, he said. He called the problem one of great importance, solution of which was not clear.

Another witness, GE's director of research and chairman of the NAM's subcommittee on atomic energy, Dr. C. G. Suits, testified at some length. Risks are part of the normal cost of doing business, Dr. Suits said; but atomic risks may well be regarded as abnormal. Compared with the latter, those involved in the Texas City disaster or the accident in the Chicago power station were minor. A reactor accident with escaping fission products could be a real catastrophe. The witness elaborated:

> . . . The potential damage might be much greater in dollar magnitude than the net worth of the station operator or the manufacturers of the generating equipment and auxiliaries, and hence self-insurance is not possible. Insurance companies have thus far not been willing or able to write insurance for this extraordinary risk. From an insurance standpoint this kind of an accident is extraordinary in two respects. First, careful design and proper location of reactor plants will reduce the probability of serious atomic accident almost to zero. Secondly, however, if extremely improbable combinations of circumstances should occur, leading to a serious accident, the resulting damage claims might be very great. It is this extremely improbable but not entirely negligible accident for which insurance has thus far been sought unsuccessfully.
>
> It should be emphasized that there is no unwillingness on the part of industry realistically to face up to the unusual risks of the atomic power business, but from the nature of these risks this protection must be accomplished by insurance. No company has thus far been willing or able to write the required insurance. The solution of this problem is very important to the future development of atomic power and must be faced realistically.

WHILE there are risks in the program and they should be insured against, it is possible to become unduly concerned. There is some reassurance in statements of AEC officials. One example is the testimony of Dr. Willard F. Libby, member of the AEC. According to him the remarkable safety record of reactors in this country makes it "obvious that reactors can be made sufficiently safe for industrial applications." Past safety is attributable

¶ "ON *the threshold of atomic power for peace the utility industry faces* INTER ALIA *the important question of casualty insurance against claims from the general public in the event of a plant disaster. The problem is of a nature and magnitude never previously encountered. It is now being intensively studied by all concerned: the utilities and reactor builders, the insurance industry, and the Atomic Energy Commission.*"

to careful design and meticulous attention to operating procedures. Also, the location of each reactor was carefully considered.

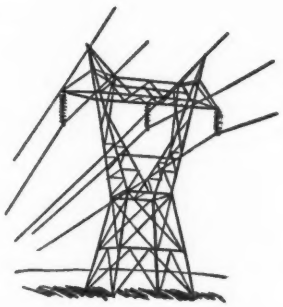
Dr. Libby discussed the safeguards which have been provided through self-regulating features, reactor safety systems, and containment. The hazards can be evaluated only by pondering the various mechanisms whereby some of the fission products contained in the reactor may be discharged into the atmosphere. Dr. Libby's list includes: melting of fuel upon loss of coolant, power transient, chemical reactions, and sabotage. These risks concern neighbors and the wider public. In addition there are the risks, exemplified by the Chalk River incident, whose effects are confined to the reactor operation itself, such as the problems of costly decontamination. To study these risks the AEC has an advisory committee on reactor safeguards. On that committee the insurance industry is represented through Colonel Reuel C. Stratton of The Travelers Insurance companies.

ACCORDING to Colonel Stratton, the Home Office Life Underwriters Association led the way by permitting the development of a coding system acceptable to the Atomic Energy Commission, which, virtually, so penetrated security that immediately better than 97 per cent of all persons working in AEC plants were able to purchase their desired coverage in a manner similar to and at the same cost as if they were not working in a plant subjected to radiation. Since then, through continuous resurveys and the application of codings, together with the development of a reasonable quantity of actuarial experience, underwriting requirements have been lessened until today better than 99.7 per cent of all persons working in AEC installations can obtain their insurance exactly as if they were working in an ordinary industrial plant. In addition, the accident and health insurance associations adopted a few years ago the same codings and attitude and are agreeing with this underwriting leniency.

Thus, the life, accident, and health companies have carried forward a program evaluating the possible additional risk created through the introduction of nuclear energy into large plants; they have during the past years continuously collected statistical data and in a forward-looking manner have been able to absorb the exposure in a normal manner and at a normal cost. There is no apparent reason why such an attitude should not continue.

THE main essentials in guarding against environmental contamination are listed by the AEC as time, distance, shielding, and containment. All radioactive substances decay and in time become harmless. The time required varies from a fraction of a second to a generation. Dr. John C. Bugher, AEC's director of the division of biology and medicine, assures us:

> That it is perfectly feasible to live and work with vast amounts of highly radioactive substances has already been demonstrated in the plants of the AEC itself. In some of these plants, the workers manipulate safely radioactive material equivalent to thousands of tons of radium. Not only has radiation injury been almost negligible in the atomic energy industry but the climate of radiological safety has resulted in better care with respect to hazards of all kinds so that the safety record of the



## The Insurable Risk of Atomic Plants

*". . . the commercial production of electric power from atomic fuels involves casualty hazards new in nature and magnitude when compared with past commercial experience. The dimensions of the insurance problems are not fully clear to the public utility or the insurance industries. Appraisal of the problems' dimensions depends on study by all concerned and involves the downgrading of heretofore secret AEC facts and figures."*

AEC has merited special recognition. Difficult as the problems are, there is no occasion for fear that this record cannot be continued in the expanding atomic energy industry which may form one of the bases of our industrial and social structures within a comparatively few decades.

Up to last September AEC and Manhattan Engineering District contractors had had to make workmen's compensation payments in only ten radiation cases, none of them classifiable as an occupational disease. From its complete data on contractors' experience AEC concludes "that one may be safer in an atomic energy plant than in many other industrial plants." This is the situation at its best.

At its worst, however, damage could be of huge proportions. For that picture turn to George L. Weil's article in *Science* for March 4, 1955. Mr. Weil reports that fission products inhaled or ingested are from 3,000,000 to 2 billion times more toxic than chlorine, the most potent common industrial poison. Yet they cannot be detected by the senses. Moreover, nonlethal doses may produce permanent injuries not becoming evident for many years.

Further, we learn that a nuclear power plant has a built-in capacity for self-destruction in a fraction of a second. Examining the consequences of a nuclear power plant running away under the most pessimistic circumstances leads to alarming possibilities. Under certain conditions a plant's nuclear output might double each

thousandth of a second, ending in an "explosion" that would release a cloud of radioactive fission products. The consequent fall-out on the plant property would be one of the least of the consequences. Assume that the cloud moves slowly over a residential and industrial area and is subjected to a rainstorm. Thousands of people, their gardens and farms and their water supply would be affected. The whole area would have to be evacuated; its businesses shut down.

While these dangers may be minimized by precautionary measures, the latter will add to the cost of the plant and its operation.

THE insurance industry is in touch with the AEC not only through Colonel Stratton but also through a recently created informal committee. In March a group of ten insurance executives, having already been checked for security, had a 2-day briefing at the AEC in Washington. At this writing members of the group are visiting various reactors to gather information necessary if the industry is to engage in insurance of private reactor operations. It is intended that the group will issue an unclassified report on its findings for the use of the insurance industry. At the same time, industry as a whole needs to assess the insurance problem; and it is doing so through the Atomic Industrial Forum and the National Industrial Conference Board, both with headquarters in New York city.

Liberty Mutual Insurance Company, the largest mutual casualty concern, is now building a radiation control laboratory to study the problems posed by industrial use of radioactive materials. The laboratory is to be finished by November. Announcing its plans, the company stated that "In the field of electric power it is estimated that 50 per cent of new plants will be of the atomic type within twenty years."

WITH public utility reactor plants approaching reality, life, accident, and health insurance companies have been studying and evaluating risks so as to enable individual employees to obtain personal protection at normal cost. So long as the government, under the original Atomic Energy Commission law, assumed the risks, the writing of such insurance offered no problem to the insurance companies. Under the revised law the licensee for industrial power purposes must take the risk or insure it. As the use of reactors grows, the risks will grow. To quote Colonel Stratton:

> A nuclear reactor of the power production type will not explode although it might suffer such a release of energy that the installation might be destroyed locally. Fortunately to date no such episodes of any magnitude have occurred. Naturally, the industry is attempting to design and install so that such occurrences will not happen. It is the catastrophe features of such a suspected occurrence which becomes the chief problem for the insurance industry. Rate making becomes difficult. The insurance industry must be prepared and face the fact some persons exposed to radiation may not show evidence of the exposure for years thereby introducing the question of deferred liability. Confusion has been added by the demand of some industrialists that they be permitted to purchase amounts of insurance not only far in excess of their normal quantity



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but far and beyond the underwriting ability of the insurance industry. Even the exposure under Workmen's Compensation is changed as all of the employees at a power reactor installation may be exposed to a single fatal event which is not usual in present-day industry. To be sure such an event would endanger also employees of neighboring plants and the persons and property of the public.

*Standards and Codes*

ALTHOUGH many standards and codes have been promulgated both by government and private agencies, compliance with such standards will be helpful only so long as they are maintained in an extensive and up-to-date form.

Greater legal force might be accorded such codes if they were enacted as law by state or federal governments. The resulting rigidity in standards might be objectionable, however.

Plans for the construction of atomic reactors under government contract are now reviewed by the advisory committee on reactor safeguards of the AEC. The body operates, however, without express statutory authority, and the precise legal effect of its decisions is uncertain.

While compliance with codes will constitute some evidence of due care, violation thereof may also be taken as *per se* proof of negligence.

*Subsidiaries*

Another device which has been discussed is the isolation of atomic activities in a subsidiary corporation so as to limit possible recovery to the assets of the subsidiary. Two difficulties must be considered: *First,* unless the subsidiary is given a freedom which will virtually prevent effective control by the parent, the courts may "pierce the corporate veil" holding that the substantial identity of the parent and subsidiary is such as to permit recovery against both. *Second,* those employees assigned to the subsidiary might resent the "second-class of citizenship" which might result from their separation from the parent.

THAT government participation in the insurance program is inevitable is the assumption of Detroit Edison's general counsel, Paul W. McQuillen. Mr. McQuillen is also chairman of the legal committee of Atomic Power Development Associates, a group studying the field for 33 companies. The worry about liability is not confined to those who will operate

¶ "WITH *public utility reactor plants approaching reality, life, accident, and health insurance companies have been studying and evaluating risks so as to enable individual employees to obtain personal protection at normal cost. So long as the government, under the original Atomic Energy Commission law, assumed the risks, the writing of such insurance offered no problem to the insurance companies. Under the revised law the licensee for industrial power purposes must take the risk or insure it.*"

commercial reactors but is shared by equipment manufacturers and all others who have identifiable responsibilities for parts of a reactor or its operation. Mr. McQuillen hopes that the Congress will share the burden. The law at present exempts the government from any responsibility. Mr. McQuillen testified:

> In time, with experience and after study by both the insurance companies of the country and the regulatory officials sharing responsibility for their operations, it seems fair to hope that reserves may be established and risks may be pooled, as has been done in the past in other types of liabilities new and frightening in their time.
>
> It now seems unlikely that private industry will ever be able to underwrite the whole risk of atomic accidents, but it should be able to carry a substantial amount of the load. Meanwhile, private persons may be unwilling to risk all their possessions and utility commissions may be unwilling to allow utilities to risk their assets essential for the regular public service in an endeavor to tame a new force which conceivably might destroy them in the process.
>
> Before the third stage of commercial use can be reached these problems must be solved. It cannot be expected that anyone will go into the new business unless he has confidence that it will be good.

An aspect of the insurance question not yet mentioned by us was presented during the hearings by Vice Admiral Earle W. Mills, appearing on behalf of the Foster-Wheeler-Pioneer Service-Diamond Alkali Nuclear Power Project. This is the matter of uniform construction codes and material specifications on a national basis, inasmuch as the risks are interstate. This problem, said Mills, has several important aspects:

> . . . One is the need for uniform construction codes and material specifications to be formulated by an authoritative body—and I have used this simply for the purpose of explanation—as, for example, the boiler and pressure vessel committee of the American Society of Mechanical Engineers. The work of this body, in the past, is a fine example of industry co-operating in drawing up generally recognized rules for the safe construction of boilers and pressure vessels. These rules are accepted by enforcement agencies of most states and municipalities as a basis for authorizing the installation of boilers and pressure vessels within their jurisdictions. Compliance with these rules is also used by insurance companies as the basis for writing policies on such equipment.
>
> Up to now, no comparable rules for the safe construction of components of nuclear plants subject to pressure, temperature, and radioactivity, establishing minimum safe material, construction, inspection, and quality control standards acceptable to all enforcement agencies and insurance companies, have been formulated. Consequently, the enforcement agency of each state or municipality undertakes or may undertake to make its own rules. This would tend to create a state of confusion which could seriously retard development and manufacturing progress. . . .
>
> In view of the fact that a serious calamity in a nuclear energy installation in one community might conceivably destroy lives and property beyond



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the community, or beyond state borders, it is quite important that appropriate construction codes be developed by a respected authority, and that the codes be accepted on a national basis. It is believed that this can best be accomplished only by an act of Congress.

In his address to the Stanford Research Institute and Atomic Industrial Forum, Inc., on April 5, 1955, Colonel Stratton stated that there is no experience by which one may estimate the possible losses arising out of a nuclear catastrophe. In the case of workmen's compensation all of the employees who are at an installation may be exposed to a single fatal event. This situation is not usual in present-day industry.

Anticipating the need for such extended coverage, the joint casualty committee on radiation convened at least two years ago to consider exactly this problem. Deliberations have been continued frequently since that time. Subcommittees have been appointed to study not only the possibility and probability of losses, but also to determine to what extent the insurance industry might go of its own accord and what assistance might be obtained by reinsurance in foreign markets. In addition a "Q"-cleared committee of ten insurance executives is studying this problem with the Atomic Energy Commission.

Colonel Stratton stated optimistically:

> Without doubt the insurance phase of public power utilization of nuclear energy will be solved. The obstacles are not insurmountable. Complete absorption of the risk may eventually require some participation by the federal government. I believe the solution will be forthcoming, and forthcoming in time to satisfy all concerned.

To summarize, the commercial production of electric power from atomic fuels involves casualty hazards new in nature and magnitude when compared with past commercial experience. The dimensions of the insurance problems are not fully clear to the public utility or the insurance industries. Appraisal of the problems' dimensions depends on study by all concerned and involves the downgrading of heretofore secret AEC facts and figures. Progress toward that end has been taking place and as a result the insurance industry later this year will be much better equipped with knowledge as to the coverage that is likely to be needed, the degree to which it is able to supply such coverage, and the insurance responsibility the government should be asked to assume.

By early 1956, when the Joint Committee on Atomic Energy holds its next regular annual hearings, legislative proposals on the subject should be ready. What reception the Congress will give to proposals for government insurance of atomic power risks will depend of course on just what the government is asked to do. Some legislators who opposed the 1954 legislation as a "give-away law" may be expected to view critically insurance or reinsurance proposals. But it is inconceivable that use of the atom for power generation with all that it means for the country and the world will be stymied for lack of adequate insurance protection.

# Cincinnati Transit Beats Autos With "Clubs"

*Regulatory commissions, as well as transit company operators, investors, and passengers, have considered many ways of trying to induce people to ride buses instead of driving their own cars, particularly when the current high volume of customer spending makes the cost feature such an important factor. This is an entertaining account of the genesis, organization, and performance of the so-called transit "clubs."*

By GEORGE W. KEITH*

THERE is probably nobody living off the transit routes who has not at some time wished the buses would pass his home. If one did, he'd think he was dreaming.

Mt. Lookout residents in Cincinnati had no such thought as a big transit bus passed recently where no bus had ever been.

Nor did they gasp as the vehicle stopped frequently between blocks to pick up neighbors. They had been notified this would occur.

One may imagine one neighbor remarking facetiously to another, "It is Kellogg, passing out free samples!"

From the name it would be wrong to infer the samples were of cornflakes; but there is no doubt that the cornflake sampling technique—a free taste of what to expect from a new product—was being used in a revolutionary manner.

PREVIOUSLY confined to goods, Cincinnati Transit was applying it to services —ten free rides on a "different" de luxe express, with a seat guaranteed, and other features, similar to those offered on railroad train club cars.

It was to be the Mt. Lookout Club Flyer, an extra-fare ride, traveling over a route, and, at times, established by consultation with prospective passengers; ur-

*Professional writer, resident in Cincinnati, Ohio. For additional note, see also "Pages with the Editors."

ban transportation in newest type buses, wherein to enjoy, if desired, the camaraderie of your neighbors; or, as one man put it, "You can jest set and think—or jest set," without the aggravations of congestion driving, arriving at work and home relaxed and refreshed.

AFTER signal success as city manager of Cincinnati, W. R. Kellogg had taken over the reins of Cincinnati Transit in January, 1954. His predecessor, Morris Edwards, had developed "the most modern fleet of any in the nation," the first of any great size to roll on rubber entirely.

Fares in the first half of the year were lower than in late 1952 and all of 1953, due to a fare cut contained in a new franchise negotiated by Edwards. Instead of attracting patrons, the company lost 10.1 per cent of its riders during 1954, bringing the total shrinkage since the peak of 1946 to 45.7 per cent; a quarter-million, ever-increasing auto registrations for the county were the prime reason.

The chief competitor of transit being the more expensive to operate private automobile, Kellogg concluded that with the populace's profligacy with take-home pay, it cared little or nothing about costs.

Parking fees of 65 cents to $1.50 per day added to operation cost, on top of the original price of the private car, placed Cincinnati Transit in a favorable economic position with its 18.75 cents per ticket, or 20 cents, cash fares.

Breaking its back to provide the lowest fare possible, consistent with good service, the company had been catering to only a part of its riders.

Another part seemed interested only in convenience, willing to forego comfort, even to enduring the harrowing trials of bucking downtown congestion. These must be catered to.

SOMETHING for "the maximum convenience buyer," Kellogg told his staff, "at a cost under what he is now paying to drive and park, if possible." Probably a charter service, all agreed. But what kind, and where to begin, was the problem before his strategy team, as it saw revenues vanishing steadily during the year.

It must have been considered almost in answer to prayer when C. Maynard Turner, vice president in charge of rates for the Cincinnati Gas & Electric Company, turned up with a "club plan" for his own suburb, Mt. Lookout.

This is an almost exclusively residential district, with many large homes owned by executives. (Ah! The "maximum convenience buyer!") It is six to seven miles from downtown (just the right distance for a trial). Many streets lie deep off the regular bus routes. Private cars are almost a must. (The ideal setting for the first act!)

Turner had recently come from the East, where he rode commuter trains, with extra-fare cars, which assured him a seat, and regular contacts with the same passengers daily. His wife drove him to and from the suburban depot.

"I woke up in the middle of the night," he told me, "and recalled this. I began comparing it with my present residence back off the bus routes. I thought there must be many of my neighbors who, if they had the opportunity, would be glad to get rid of the grind of driving through traffic every day to get to the job. They would welcome the sort of club car I used to ride."

It was what the company had in mind,

and Turner was received with open arms by Kellogg, and has been of considerable help in developing the plan which emerged, a direct onslaught against the "firmly entrenched automobile habit."

To let the prospect exercise the initiative, by simply announcing the service and price, was too much like the despised tactics of the dictators—the *fait accompli.* So, it was decided to let the riders have a hand in the matter, through two questionnaires.

To learn their susceptibility, a postage prepaid card was mailed to 1,500 homes by a direct mail outfit, with a letter of explanation: buses regularly, Monday through Friday, leaving in the morning at the most popular times, and over a pick-up route convenient to most riders; no stops after leaving the suburb; afternoon return trip handled the same way; a special, express, de luxe service, with fare somewhat in excess of regular fares; fast, comfortable, saving time, worry, and parking fees; monthly membership fare, plus 10 cents a ride.

Whether or not this service was to be given depended upon their answers, as they were asked to state, "I want to reach my office at ———." "I want to leave my office at ———." "Present mode of travel —own car, bus, or how?" Comment and suggestions were invited, and the clincher added, "Will you give it a free trial?"

There were 203 replies, 13.5 per cent; 103 accepted free offer; office arrival ran from 7.45 to 9.30 A.M.; from this, three inbound trips were determined, 7.50, 8.20, and 8.50 A.M. arrival downtown. Outbound times were fixed at 4.40, 5.10, and 5.40 P.M., providing maximum time convenience for 80 per cent of the prospects.

PROSPECTS' homes were spotted on a map with a route to give maximum pick-up service to the greatest number, deliberately avoiding duplication of existing regular routes. Downtown the buses traversed principal streets and passed major office buildings.

Fare was determined with an eye on the competition, memberships being fixed at $10 per month, plus a dime a ride. Thus, using January as an example—twenty-one riding days, 42 fares, at 10 cents—$4.20 —total, $14.20, as against parking rates from $15 to $25 per month; saving 80 cents and up, not taking into account average private car operation costs, which could well increase savings to around $11 per month.

The company did not stress this, assuming members would place cost last when assaying the advantages of the plan.

A second questionnaire went out sixteen days after the first query, not to just 203, but to all 1,500 homes. It contained full

¶ *"A* CLUB *of some sort is needed to change the uneconomic thinking of private car drivers, and the hesitancy of downtown business to order those drivers off the streets; it would be impossible to find a more genteel, inexpensive one than the Club Flyer, zooming in and out in all directions, not just from Mt. Lookout, in Cincinnati, but in every town in the nation."*

information about route, rate, and schedules in an accompanying letter and folder, line map, and 10 free tickets, good for the trial week; prospects were asked to state inbound and outbound trips they would normally use. A tremendous amount of work went into preparing all these data.

The specific details so impressed recipients that 116 said they would accept free rides, whereas, it will be recalled, only 103 so signified on the first query. This was encouraging in itself. Of the total 132 replies, sixteen could not use the trial runs, and stated why.

Identifying numbers on the tickets were placed opposite names in the directory used for the mailing list.

Newest and best 51-capacity buses were allocated to the runs, with the most capable of the volunteer operators driving on a time-and-half basis. (This in addition to their regular tours.)

NEWSPAPERS pounced upon the idea as the "first in the nation," its possible effects on downtown traffic if adopted generally, the seat guaranteed on the 25-minute ride; and, of course, the free sample rides.

*The Wall Street Journal, Business Week,* AP, and CBS-TV picked it up and gave it favorable mention.

Twenty-seven days after mailing the first inquiry the three initial free runs were made, with eighty-eight inbound riders aboard, along with municipal, civic, and press representatives, and C. Maynard Turner, who suggested the service. Free newspapers were handed out the first day. Thereafter they were sold on all runs.

Turner, ironically, when he proposed the plan, had informed the company he would not be able to avail himself of it, as his duties carried him hither and yon at all sorts of odd hours.

But he took a sabbatical and enjoyed the free rides in a state of happiness mixed with trepidation for his foster baby.

There were more people downtown and more autos to the square inch on December 27th, the first trial day, than there had been on almost any day before Christmas. The weather by evening was foul.

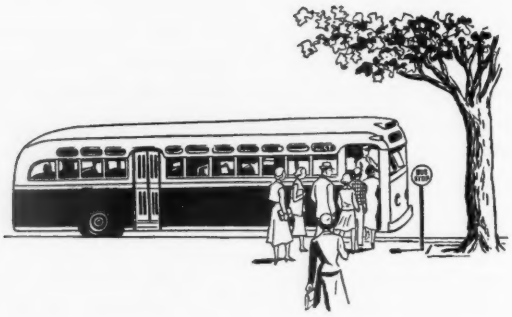
"On the outbound trip," Turner told me, "my heart sank when I saw the slow progress we were making through downtown. Just inching our way. This, I thought, is the death knell for the plan. Then I perked up, as I heard one man remark, "I'm sure glad I'm not driving in this mess." The chorus took up the refrain. To a man they echoed this sentiment. And, although we got home late, I was gratified."

ON the second day twenty-two dropped out, but fifteen new ones were added. Next day American Airlines stewardesses were aboard to sell 49 memberships. The free rides made otherwise sanctuary-safe autoists accessible to the fair salesladies; twin strokes of pure genius!

Beautiful-blonde-conscious city rooms gave this angle full publicity.

By noon of the third day of actual pay operation there were seventy-two $10 members, fifteen of whom were women, paid up in good standing—sitting down, rather. Of the total, fifty-seven rode home, leaving fifteen who paid 47.6 cents for "not" riding, but secure in the knowledge that the special service was available.

Kellogg was jubilant, remarking, "A stand-by charge operates effectively in other utilities, and appears practical in transportation."



## Democratic De Luxe Service

*"THE most pleasing, unexpected aspect of the Mt. Lookout operation is in that what was intended as a 'maximum convenience' for those in the executive bracket, has proved to be pleasing to men and women in various walks, and economical to those interested in that phase. Indeed, anyone who* THINKS *he, or she, can afford to drive downtown to work, and pay for parking, actually* CAN *afford to ride a Flyer, at $10 a month, plus 10 cents a ride; and save money."*

The company feels the club fee is, in effect, a stand-by charge, thus reimbursing it for its willingness to haul members, even though they are unable to use the privilege. Praise for the plan is unanimous.

A Cincinnati *Post* reporter found "not a grouch in a carload," as even the driver declared that in his thirty-one years of service he had not ridden with a nicer crowd. "People," he said, "are 100 per cent more pleasant when sitting down!"

Admiring the "about 67 cents a day against 85 cents a day for parking," a chain store executive said, "What sold me was avoiding the slippery driving."

VARIED were the reasons for pleasure. An insurance man, who used to ride with a neighbor, was flattered because he had been consulted about the route and schedule, vowing he will ride the Flyer as long as it runs. Score one for public relations.

"I just don't fit in buses unless I get a seat," volunteered a 6-foot-three member; living half a mile off the regular beat, he now drives to the Flyer stop and parks, loving the insured seat and avoidance of "confounded traffic."

A practical chemical engineer recommended it to everybody, "especially property owners. Property in suburban areas rises with such a plan."

Formerly using a shuttle bus and transferring twice, because she lived so deep in the area, a phone company secretary now boards the Flyer at her door, saving half an hour to eat her breakfast at home.

Another secretary told a *Times Star* reporter the Flyer "puts my street on the map," being so isolated she had to walk through a dark woods; she now gets doorstep service and saves twenty minutes.

"I live on a street that never was sanded in bad weather," a specialty shop executive told me. "Now," he continued, "the transit company keeps it in good shape so the Flyers can make their schedules, and the whole neighborhood benefits by it."

He only uses the service four days, as his shop is open late on Mondays, but he is so enthusiastic he thinks it should be extended to the whole city.

On this score, said a hardheaded, practical bank vice president, "the most important thing is, if people in other parts of the city take advantage of it, it will greatly cut down traffic downtown," which is one goal of the plan, the other being, of course, increased revenues.

A WIDE-AWAKE editor of a community weekly in the opposite part of town from Mt. Lookout, the *Western Hills Press,* commented editorially, "This express service . . . comes as close to the convenience provided by private automobile as public transportation is likely to afford . . . It will provide another check against further advances in public transit fares, to the benefit of the public generally."

The Cheviot Civic Club took the ball from there, and indications are one or more Flyers may be in circulation in the area of the *Press* by the time this article is printed. It is a region of great area-in-depth, heretofore largely reached only by private cars, and mostly lying outside the corporate limits of Cincinnati, where "accessibility is a key consideration to potential residents," as the editor pointed out.

In addition to the huzzas for the Flyers, there is evidence of happy repercussion. A 2-car businessman offered to pay John Paul Jones, Cincinnati Transit public relations expert, a year's subscription in advance. Cause for rejoicing—the Flyer made one Cadillac unnecessary, so he sold it, and also saved $21 a month parking fees. A victory comparable to an Admiral by the same name, spiking the guns of a British battleship!

The gentleman will be absent in Europe for six weeks, or so, shortly, and has been assured his seat will be waiting for him on his return. Thus he will be taking advantage of the Flyer clause which enables members to obtain refunds on unused portions of their tickets while vacationing, or when called out of town for other reasons.

Also, if a rider joins the club after the fifth of any month the fee declines: $9 for sixth and seventh day starters; $8 for tenth and eleventh day starters; and down to $1 from the twenty-eighth to the end of month, drivers handling the sales.

Provision is made for guests at 50 cents a ride, but only two guests per member per month. Cards are punched to show such use.

THE company is not resting on its oars. The seventy-two at the start of this article has now risen to ninety members because of an indefatigable canvass of Mt. Lookout by phone. Since a check showed 88 per cent of the homes do not contain prospects, 12 per cent, or 180, do hold out hope, leaving a potential of 90 unsubscribed. And, as there are seats for 153, 63 of these are yearning for sitters.



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Barren homes' occupants either worked in the suburbs, used their cars for selling, traveled out of town, had swindle sheets to cover their car uses, came and left at odd hours, or were retired or unemployed; but many lived too far from even the Flyer route for convenience.

To accommodate these latter, Flyers are worming their way into this terrain, as one after another resident indicates interest.

Wherever possible the route is being extended to include those who will join if they do not have to walk too far.

"This Jones fellow," said one, "is fixing it so that the Flyer chases you up alleys," as he paid his $10.

Some of the more rugged individualists balk at walking a block, when they can board their own cars in their basements. These present bleak possibilities.

But there is one segment, those fathers who assert they would subscribe but they must haul the children to school, after which they might as well drive to work. Come school vacation time and it is hoped these fathers will succumb to the blandishments of high-pressure salesmanship, and join the club. And, liking it so much, their scholars will either have to walk to school, or be driven thence by mothers. Here lies hope.

ANOTHER source of possible membership is in newcomers to the region. The company subscribes to a service supplying names and addresses daily, of all people who have moved into, or out of, the neighborhood. Newcomers are solicited as soon as they get settled.

Before they can worry hard about how far it is to the bus line, it often proves stimulating to have a pleasant voice offer such a wonderfully prompt answer to an unspoken thought.

A club member, on a regular route, connecting with Flyers, may pay a dime, and two cents for a transfer, using it and his card to ride the special. Transfers from the Flyers are issued in the same manner.

During the day cards may be used on regular buses by paying a dime; many of the present members find this useful in frequent visits to the Court House, City Hall, or Union Depot.

Any member of a family may use the card-dime privilege during evenings or on week ends.

More isolated residents find it attractive to drive, park in the suburb, ride Flyers both ways, pick up the car in the evening, drive home.

Since the middle, or 8.20 A.M. inbound trip carries the heaviest load, with the first trip very light, a more than capacity load may develop. This would mean an expensive providing of seats for just a few surplus riders. But it would also be an indication of growth and prosperity too welcome to be deplored. The evening runs suffer in a similar manner.

Possibly a scheme to permit one-way use of the Flyers may be adopted, which may aid in the solution of this. It is being considered.

THE most pleasing, unexpected aspect of the Mt. Lookout operation is in that what was intended as a "maximum convenience" for those in the executive bracket, has proved to be pleasing to men and women in various walks, and economical to those interested in that phase.

Indeed, anyone who *thinks* he, or she, can afford to drive downtown to work, and pay for parking, actually *can* afford to ride

a Flyer, at $10 a month, plus 10 cents a ride; and save money.

To illustrate we will delve into the realm of past domestic economics. In the $18-a-week, 5-cent fare, 25-cent lunch days, many husbands, baffled, unable to make ends meet, nominated their wives as fiscal agents.

Wives took the pay envelopes, doled out a couple of dollars to husbands for "spending money," then prayed for a happy solution, as they issued 10 cents car fare and 25 cents for lunch daily; crude, but eminently efficient—a perpetual inventory of funds. No sudden crises—new tire, battery, seat covers, tank full of gas—to unbalance the primitive budget.

Fatter envelopes found husbands bravely taking over the bulging budget balance. Wives now get "allowances," and husbands dispense the balances. Were the archaic system still in vogue it would show something like this:

*Daily Disbursement*

Parking 65 cents.

Mileage 3½ cents per mile, 7 miles each way, 49 cents; a total of $1.14 before the item of lunch is reached.

It would not take long for a wife, who is accused of spending most of the money made today, to prod her husband,

"It costs only 37½ cents a day if you buy bus tickets, or 40 cents, cash. We could save 74 to 76½ cents a day if you rode the bus and saved the car for pleasure. In a month we could save enough to cover the payments on our new rugs."

If a husband were allowed the pleasure of "maximum convenience," the less than 68-cent Flyer expense would still be 46 cents a day cheaper than driving his car downtown.

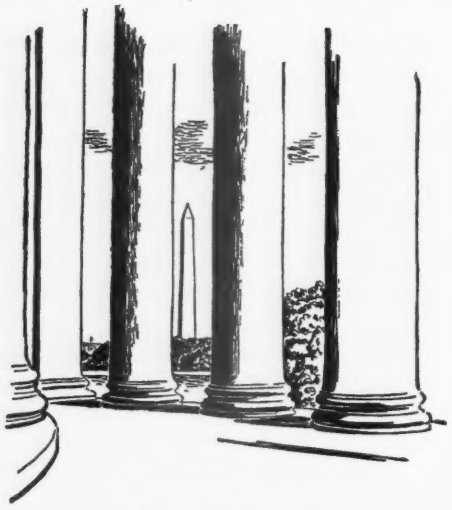
Alas! Husbands blandly ignore these possibilities, inasmuch as they do not care to ride the bus while Mr. Smith drives his car; besides, they can sleep later in the morning and do not have to walk to the bus line.

With money in the bank and jingling in the pocket they are like the boy who, when offered a dime to run an errand, declined, because he already had a dime.

If the transit industry were run on this basis it would deserve annihilation; it is this indifference to costs which is causing our traffic congestion, and which the Club Flyer is so valiantly trying to combat.

Kellogg's freshman year diagnosis of riders' attitude—"a hoot for cost—we want convenience"—and his application of a "club" in the right place, have proved eminently correct. And the almost-unheard-of unanimity of approval for a public utility project seems to augur well for his chance of extending, what he calls, "an important tool toward winning back a portion of riders who left transit in favor of the automobile."

A club of some sort is needed to change the uneconomic thinking of private car drivers, and the hesitancy of downtown business to order those drivers off the streets; it would be impossible to find a more genteel, inexpensive one than the Club Flyer, zooming in and out in all directions, not just from Mt. Lookout, in Cincinnati, but in every town in the nation.



# Washington and the Utilities

## *TVA "Self-financing"*

A THREE-SIDED battle is brewing in Congress over the efforts of the administration to establish financial reforms for the Tennessee Valley Authority, so as to bring it closer to a self-supporting basis, and the die-hard Democratic rebellion against the Dixon-Yates contract. Representative Buckley (Democrat, New York), chairman of the House Public Works Committee, was slated to introduce a bill which would sponsor the Budget Bureau's plans for putting TVA on a better fiscal foundation.

On the other hand, Representative Davis (Democrat, Tennessee) has another bill (HR 6575) which would launch TVA on a program of independent financing, through bond flotation, without further restriction on its authority to plan, build, and expand plant facilities. The Budget Bureau's program includes ten interesting provisions:

1. Congress would continue to approve new TVA power plants.
2. A $750,000,000 ceiling would be placed on the amount of TVA bonds outstanding.
3. The Secretary of the Treasury would have final say on the timing, amount, and terms of TVA bond issues.
4. Fixed cash repayments to the Treasury out of power earnings would be larger than contemplated by the TVA board's plan.
5. The Treasury would not purchase any of the bonds through negotiation with TVA.
6. Orderly return to the Treasury of TVA investment obtained from congressional appropriations would be provided for.
7. Interest computation would conform to Treasury policy, rather than to TVA policy.
8. The authorized functions of TVA would not be broadened.
9. Reduction of U. S. investment in TVA to $250,000,000 would be required.
10. National banks would be permitted to deal in or underwrite TVA obligations, but without removing restrictions applicable to their purchases for their own accounts, or limitations on the total amounts such banks may hold.

DAVIS' bill would permit TVA to go ahead with its own financing for units at Johnsonville, Gallatin, and Sevier —all in Tennessee. These units have been endorsed by Chairman Herbert D. Vogel, President Eisenhower's appointee to the TVA board, but have been turned down by the Budget Bureau for fiscal 1956 appropriations.

Representative Evins (Democrat, Tennessee) endorses the Davis proposal and is very critical of the Budget Bureau program. Evins stated:

> The sum total of all of the Bureau of the Budget and White House proposals would amount to raising the rates, milking the system, and creating an atmosphere whereby private power can walk in and take over.

Speaking of the broader plan, Evins said the new proposals would "in effect, place the Bureau of the Budget in the position of direct management of TVA."

It was Governor Frank G. Clement of Tennessee who asked the House Appropriations Committee to bar government spending on the Dixon-Yates contract. Clement also urged a subcommittee handling funds for the Tennessee Valley Authority and the Atomic Energy Commission, to junk a $6,500,000 sum budgeted by President Eisenhower for a power line across the Mississippi river and apply it instead to construction of a new TVA generating plant at Fulton, Tennessee. He said the river line won't be needed anyway, as the city of Memphis has refused to accept power from the proposed Dixon-Yates plant at West Memphis, Arkansas, and because valley people generally are determined to block Dixon-Yates.

"We are confident that we will block it through the courts, and we are prepared to go to the Supreme Court with it, if necessary to do so," Clement said. "And if all court action fails, we are prepared to take other recourses."

As one part of this drive, Clement urged the Appropriations group to write into its pending money bill for TVA and AEC a ban against spending of any money "for salaries, etc., to carry out the Dixon-Yates contract."

Clement endorsed recent proposals by the TVA board to seek new financing through bond sales, as a supplement to appropriations, but assailed the Budget Bureau's modification of this plan as a "piece of sabotage." He also attacked the "turncoat action" of TVA Chairman Vogel, in embracing the Budget Bureau's "attempt to wreck the plan for self-financing."

## *REA on the Hoover Griddle*

REA Administrator Ancher Nelsen made a forceful reply to Representative Kearns (Republican, Pennsylvania) regarding recent criticism of REA subsidy to its borrowers by the Hoover Commission. First of all, Nelsen pointed out that the Hoover Commission had not adopted all of the recommendations of its Task Force on lending agencies. But because of the significance of such recommendations, Nelsen drew up an analysis of the specific proposals in the light of what he considered the over-all requirements of REA in meeting its statutory obligations. He concluded:

> We believe that if the Hoover Commission's recommendations were to be adopted REA would be unable to accomplish the objectives in rural electrification and rural telephony which have been established by the Congress. The commission's recommendations would result in termination of the rural tele-

phone loans program, with less than half of the nation's farms having telephones and slight prospect for alleviating the situation. Further progress in rural electrification through REA loans—connection of unserved farms and system improvements to serve expanding loads—would be drastically curtailed under the commission's recommendations. . . .

REA is willing to study with the borrowers any plans which have merit to determine if there is a better way to accomplish the objectives of the REA program. We have noted that the Tennessee Valley Authority recently announced that it was seeking an amendment to the TVA Act which would bring private money into the capital structure, relieving the federal government of a part of the construction financing needed to meet the growing power demands of the region. This action by the TVA suggests the possibility that REA borrowers might find it desirable to explore the possibilities of private financing, looking forward to a time when they also might free themselves of complete dependence on the government as a source of loan funds. In consideration of their future financing plans, the REA co-operative borrowers in particular will need to give careful attention to their financial structure, including their capital and their borrowed funds, in relationship to their objectives and needs in serving their consumers and subscribers.

WITH respect to specific recommendations of the Hoover Commission Task Force, Nelsen's letter to Kearns made the following conclusions: (1) Few if any loans could be made by REA on the so-called self-supporting basis, which would require drastic increase in the interest rate, loan amortization requirements, etc. (2) REA is now paying 2 per cent interest to the Treasury. It would have to pay 3.5 per cent on its own 35-year debentures with government guaranty, although it might get money from private sources as low as 2.25 per cent. (3) The national economy would lose rural electric and telephone construction activity of at least $200,000,000 a year if the Hoover Commission Task Force recommendations were adopted. (4) While the Treasury might be relieved of expenditures ranging from $250,000,000 to $300,000,000 a year if the Task Force recommendations were adopted, "whether such a reduction would result in economies or efficiencies is a matter of opinion."

In other respects, Nelsen's statement indicated REA's position in favor of retaining the 2 per cent interest rate and the present setup of REA operations. The proposal that REA be brought under the Government Corporation Control Act, it was pointed out, would require specific legislation by Congress. Nelsen's letter and analysis did concede that REA interest rates and service charges would "reach exorbitant proportions" if the Task Force recommendation that the Treasury should be reimbursed for the cost of all REA operations, including administrative expenses, were carried out.

## *Gas Bill Approved*

THE House Interstate Commerce Committee recently approved the controversial bill to exempt producers of natural gas from FPC control.

Representative John Heselton (Republican, Massachusetts), an opponent of the measure, told reporters after a closed committee meeting that the vote was 16 for the bill and 15 against. The committee rejected a move to refer the bill to a subcommittee and delay action for another ten days.

# Wire and Wireless Communication

## *Union Sued for Damages*

ARGUMENTS still continue as to which side gained from the 72-day walkout which brought out greater violence than any previous strike in the South. The Southern Bell Telephone & Telegraph Company sued the Communications Workers of America for $5,000,000 in a Tennessee circuit court for damages in the recent telephone strike.

The suit, seeking both compensatory and punitive damages, was outlined in 150 pages of allegations. The company charged the CIO union and its officials with responsibility in numerous acts of vandalism during the long strike, which started on March 14th. Court officials said $5,000,000 was the largest sum ever sought in a state court at Nashville.

The petition accused the defendants of an "unlawful combination and conspiracy" and that it was "maliciously and unjustifiably entered into by the union and its members and others to damage and destroy company property."

The suit named the CIO-CWA and two individuals, R. B. Porch, CWA area director, and W. E. Buttram, Tennessee director of the CWA. It asked a jury trial. The union denied the allegations in the suit.

W. A. Smallwood, district director of the CWA, issued a statement saying, "We not only deny the allegations in the company suit, but we consider the suit a clear violation of the 'back to work' agreement in which both parties agreed to take all steps to restore harmonious relations."

The company carried its point on the "no strike" clause, a point that was generally regarded as justified. It was argued that a contract that does not bind both parties is no contract. Repeated walkouts by union locals while previous contracts were in effect led to the company's insistence on this clause. The union gained certain wage concessions, most of which were offered before the strike. But workers lost a total of $17,500,000 in wages and additional funds they would have received had the contract been signed earlier.

THE union gained an extra holiday and certain other concessions regarding classification of employees and arbitration, but many of these were offered before the strike occurred. Union members appeared happy with the terms of the contract as finally accepted. Inconvenience to the public caused by the strike caused less resentment than the vandalism and violence that accompanied it.

A spokesman for the Southern Bell

Telephone & Telegraph Company said that a new one-year contract, which has been approved by more than half of the striking members of the CIO Communications Workers, definitely includes the no-strike clause that was the main point of dispute in the strike.

## *REA Loan Approved In Vermont*

IN what was described as the first such action in the state, the Vermont Public Service Commission on May 26th approved a $146,000 loan from the federal government to the Topsham Telephone Company, Inc., of Topsham. Commission officials said the loan would be made by the rural telephone division of the U. S. Department of Agriculture.

Proceeds of the loan will be used to finance the rebuilding of the company telephone lines and general rehabilitation of the system, with conversion to dial. The loan will be amortized over a period of thirty-five years and will bear an interest rate of 2 per cent.

Commission Chairman Oscar L. Shepard said a number of hearings had been held during the past two years in an effort to find means of providing better service for customers of the utility. Extensive surveys, he added, had been made of the needs of the system by government officials and the commission staff.

The utility was ordered to file new rate regulations and schedules to take effect upon notice that the work had been started, once the loan is finally granted. The company also was ordered to engage a full-time service employee to look after customers' needs.

By the commission's order, contracts for the improvements must be let on competitive bidding and not on a cost-plus basis.

## *CAA Considers Selling TWX System*

THE Civil Aeronautics Administration informed Congress on May 26th it may sell its communication service to private operators and then lease service, as an economy move. It denied, however, that its sale-lease plans extended to the Federal Airways Air Navigation System as had been reported.

CAA's plans were disclosed to a House Judiciary subcommittee on antitrust problems in reply to an inquiry by Chairman Celler (Democrat, New York) whether it was about to turn over both systems to Western Union and American Telephone and Telegraph Company.

Administrator F. B. Lee stated CAA is engaged in a "comprehensive study" of its land lines system to decide whether "to divest ourselves of the ownership and maintenance of the teletypewriter equipment . . . and lease equivalent services from the industry."

## *Highway Legislation*

THE struggle on federal-aid highway legislation (which affects telephone and other utilities) is now being fought out in the House of Representatives. The bill (S 1048) by Senator Gore (Democrat, Tennessee), which the Senate passed last month, contains a provision for federal reimbursement of utilities forced to relocate telephone, power, gas, and water lines along future federal-aid highways. Prospects for acceptance of the utility reimbursement principle appeared favorable in the House.

A Public Works subcommittee, which has heard testimony from utility witnesses, started writing its own highway legislation early in June. Representative Steed (Democrat, Oklahoma) forecast

that the subcommittee version will authorize a program equal to the Eisenhower plan.

Though there was no fundamental controversy over the utility reimbursement principle in the Senate, several clarifying amendments were adopted. These could combine to work against the amount of utility compensation in some instances. As proposed by Senators Kerr (Democrat, Oklahoma) and Stennis (Democrat, Mississippi), they tack a reservation on the provision that the government may reimburse utilities up to the amount of 50 per cent of the depreciated cost of the facilities relocated.

The further stipulation is that a state may use no more than 2 per cent of federal highway aid funds during a given fiscal year for utility reimbursement.

## *New FCC Member*

FEDERAL regulatory commission positions continue to be filled from the ranks of the state utility commissioners or their staffs. Following a fairly consistent pattern, President Eisenhower has again called upon a member of a state commission to fill a vacancy on the Federal Communications Commission. He is Richard A. Mack, Florida Democrat and former chairman of the Florida Railroad and Public Utilities Commission. Mack, who is now second vice president of the National Association of Railroad and Utilities Commissioners, will serve a 7-year term beginning July 1st, succeeding FCC Commissioner Frieda B. Hennock. No opposition to Mack's appointment was expected, and Senate confirmation will probably follow as a matter of form.

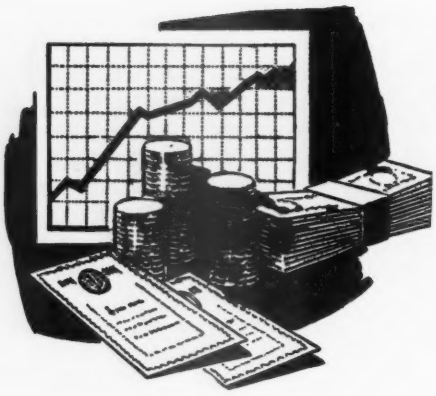
Mack is the third state commissioner to be named to the FCC. (The others are Chairman McConnaughey (Ohio) and Commissioner Doerfer (Wisconsin).) All five members of the present FPC now have former state regulatory commission backgrounds. Four were named by President Eisenhower. Several other ex-state commissioners were also named to the Interstate Commerce Commission by the President.

## *Premium Condition on Stock Offer Reversed*

THE North Carolina superior court, on May 31st, reversed a state commission order directing the Carolina Telephone & Telegraph Company (reported in 6 PUR3d 141) to offer its stock at a premium ($125) above par value ($100). The opinion stated:

> Conceding, solely for the purpose of this conclusion, that the North Carolina statutes vest in the North Carolina utilities commission the right and the power to fix at a point above par the price at which common stocks may be issued to stockholders under their preemptive right, such right may be exercised by the commission and it has jurisdiction only if the commission finds as facts (and such findings are supported by the record) that a price above par is necessary and appropriate in order to protect the public interest and further finds and points out specifically the public interest which needs such protection and finds and points out specifically wherein the fixing of the price above par will protect that public interest . . .

The court accordingly sent the case back to the North Carolina commission with direction that it eliminate from its order the requirement that the company's stock be offered at a price of not less than $125 per share.



# Financial News and Comment

By OWEN ELY

## *Forecasts of 1955-58 Generating Capacity*

THE Edison Electric Institute recently issued its seventeenth semiannual electric power survey. Scheduled additions to plant capacity (in the case of steam, manufacturers' maximum rated capability; for hydro, name-plate rating) are summarized in millions of kilowatts, as shown in table at bottom of page 779.

In the previous EEI forecast as of January 1, 1955, total future scheduled additions to generating capacity totaled only about 26,000,000 kilowatts, as compared with the present figure of 34,000,000 kilowatts. Thus, new capacity scheduled since January 1st amounts to nearly 8,000,000 kilowatts, most of the increase being for delivery in 1957-58. Part of this increase is probably due to the normal process of advance ordering, but a substantial part appears to reflect the industry's renewed confidence in the future trend of operations. Business activity has recently advanced to new high levels, with the weekly increase in electric output running as much as 16 per cent over 1954.

U. S. total capacity, excluding industrial power, is projected as follows, based on these forecasts and assuming median hydro conditions (in millions of kilowatts):

| | *Capability* | *Peak Load* | *Per Cent Of Reserve Capacity* |
|---|---|---|---|
| 1953 ..... | 92 | 78 | 18% |
| 1954 ..... | 104 | 86 | 21 |
| 1955 ..... | 116 | 96 | 21 |
| 1956 ..... | 124 | 102 | 21 |
| 1957 ..... | 131 | 109 | 21 |
| 1958 ..... | 138 | 116 | 19 |

Adverse hydro conditions would reduce the reserve percentages by about 2 per cent (*i.e.*, 21 per cent would be reduced to 19 per cent).

For different areas, 1954-58 electric output (billions of kilowatt-hours) is forecast as shown in the table on page 780.

THE Office of Defense Mobilization recently announced a revised electric

DEPARTMENT INDEX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|---|---|
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power expansion goal for class I utilities of 150,000,000 kilowatts by the end of 1958, to provide for mobilization emergency requirements. The new goal is said to have been under study for some time and was revised with the concurrence of the Department of Interior. ODM will now begin processing applications for certificates of necessity in connection with 5-year accelerated amortization of plant facilities covered by certificates, and new applications will be accepted immediately.

The ODM press release does not afford any explanation as to how the new "goal" was arrived at. Possibly it was developed by adding to normal projections of electric output the additional amount which would be required to run munitions factories on a three-shift basis, etc.

IN World War II the nation got along with less than half its present electric capacity, and less than one-third of ODM's 1958 goal. Production of munitions was substituted largely for manufacture of consumer durable goods. The same procedure might occur in another all-out war. In any event, we seem much better prepared now than in 1941, with substantial stockpiles of raw materials, machinery, and munitions, including those of the AEC, which has become the greatest consumer of electricity.

To ask the utility industry to increase present capacity of about 109,000,000 kilowatts to 150,000,000 kilowatts in three and one-half years—a building program about 40 per cent greater than that now planned by the industry—would result in an estimated 30 per cent excess capacity over "normal" projected demand—whereas even the present 21 per cent is liberal. Possibly ODM has in mind special AEC requirements, but, if so, this has not been made clear.

In any event, such an increase in capacity as envisaged by ODM would obviously require a tremendous amount of financing, and the unused capacity might substantially dilute common stock earnings if electric output should remain in the range forecast by the EEI. (In the event of a depression, the problem would be aggravated.)

THE FPC recently issued its forecast of December peak loads through the year 1957. The figure for the latter year is 109,000,000 kilowatts, which is in substantial agreement with the EEI figure. The commission's forecast of "indicated dependable capacity" for 1957 was 127,000,000 kilowatts and for 1958 128,000,000 kilowatts, both figures being lower than the EEI forecasts. The FPC figures, while released in May, were prepared as

| | *1955* | *1956* | *1957* | *1958 Or Later* | *Total* |
|---|---|---|---|---|---|
| *By Type of Prime Mover* | | | | | |
| Steam, Etc. ..... | 11.3 | 6.6 | 5.1 | 6.3 | 29.3 |
| Hydro ..... | 1.8 | 1.1 | .5 | 1.4 | 4.8 |
| Totals ..... | 13.1 | 7.7 | 5.6 | 7.7 | 34.1* |
| *By Type of Ownership* | | | | | |
| Investor-owned ..... | 8.0 | 5.9 | 4.8 | 6.0 | 24.7 |
| Federal ..... | 4.2 | 1.3 | .4 | .5 | 6.4 |
| Other Public Agencies .. | .9 | .5 | .4 | 1.2 | 3.0 |
| Totals ..... | 13.1 | 7.7 | 5.6 | 7.7 | 34.1 |

*It is estimated that by 1960 atomic-powered generators may approximate 1,000,000 kilowatts.

of last December, which accounts for part of the discrepancy.

## *Telephone Industry Becomes Sales-minded*

DONALD C. POWER, president of General Telephone Corporation, recently delivered an interesting address before the National Convention of Security Analysts, which may be summarized as follows:

The telephone business has become a "rapid growth industry": During the postwar period the number of telephones in service has increased from 27,900,000 to 52,000,000, or a gain of 86 per cent. A huge amount of financing has been necessary to provide the increase in plant required to service these additional telephones.

Nevertheless, the telephone companies have maintained sound equity ratios and increased their earnings substantially. This has been a particularly difficult accomplishment, in view of the inflationary period following World War II, and the effects of this inflation on a regulated industry.

The telephone companies had to provide service on demand and could not carry out construction projects at the most favorable times. Much of the new plant had to be built at record high costs, with a corresponding increase in fixed charges. Thus it became a major problem to secure rate increases necessary to offset these capital costs.

Mr. Power said:

> Public service commissions had not had the experience nor the staffs to handle adequately the deluge of rate applications which hit them. Telephone rates for the most part had remained nearly unchanged since some time in the 1930's. Management, too, was faced with the newness of the situation and very few experts or specialists were available in the telephone industry who had had any previous experience in processing rate revisions with utility commissions. The so-called "regulatory lag," the time between filing for higher rates and the time an order was issued by the commission, also had very serious effects on our earnings.
>
> The philosophy of many commissions had to be changed and management had to develop better methods of presenting its case in a manner which would avoid delay and would give the commissions the necessary information for advance study and thus eliminate the harmful effects of "regulatory lag." Evidence of our progress lies in the improved earnings of telephone companies. Adequate rates are the lifeblood of the telephone industry, as you well

| *Regions* | *1954* | *1958* | *Per Cent Increase* | *Per Cent of Reserve 1958* |
|---|---|---|---|---|
| I Northeast ..... | 103 | 127 | 23% | 13% |
| II East Central ..... | 84 | 129 | 54 | 18 |
| III Southwest ..... | 86 | 129 | 50 | 11 |
| IV North Central ..... | 60 | 74 | 23 | 18 |
| V South Central ..... | 43 | 63 | 47 | 50* |
| VI West Central ..... | 8 | 12 | 50 | 37 |
| VII Northwest ..... | 43 | 58 | 35 | 21 |
| VIII Southwest ..... | 45 | 58 | 29 | 22 |
| U. S. Totals ..... | 472 | 650 | 38% | 19% |

*Seventeen per cent based on summer peak load.

realize. Although a few commissions do not yet look upon regulation as a means of giving specialized industries the advantages of competitive enterprises while at the same time preventing the abuses of monopoly, it is my firm opinion that the regulatory climate so far as the telephone industry is concerned has shown real signs of improvement.

THE telephone industry has now practically caught up with the unsatisfied demand for telephones which developed during and after World War II. Hence the telephone companies are becoming sales-conscious. But since there had been no necessity to "sell" service or phones for many years, this means that salesmen must be trained and advertising policy developed.

As Mr. Power remarked:

> We have always believed that the potential of the telephone business has just been scratched and as our sales programs begin to take hold, our predictions are being confirmed. The demand for new colored telephones has far outrun production, and yearly budget estimates for an increase in telephones have already been exceeded in many cases. At one time we thought everyone had to have a black telephone. But like the automobile business, you furnish what the customer wants. Today we are supplying telephones in eight different colors and our customers like them so well that we are beginning to wonder what we're going to do with all our black telephones. We have set up merchandising and sales staffs within our organizations to push sales and train others to sell, and our internal publicity carries the message constantly that all of us can and must be salesmen. The goals which we can achieve are constantly being revised as we are exceeding the programs which we previously thought were optimistic. Extension telephones, special directory listings, increased use of long distance, adjustments for hard-of-hearing people, dial lights, outdoor gongs, all these services are useful and salable. . . . but equally important they produce additional revenue. Many subscribers know very little about these services and many more would buy them if a telephone representative would contact them. Our job is to get out and to sell to our customers.

PRESIDENT Power sees little letup in the expansion program for the industry.

CURRENT YIELD YARDSTICKS

| | *June 3, 1955** | *1955 Range* | | *1954 Range* | | *1953 Range* | |
|---|---|---|---|---|---|---|---|
| | | *High* | *Low* | *High* | *Low* | *High* | *Low* |
| U.S. Long-term Bonds—Taxable | 2.74% | 2.78% | 2.62% | 2.70% | 2.41% | 3.15% | 2.70% |
| Utility Bonds—Aaa | 3.09 | 3.09 | 2.93 | 3.13 | 2.86 | 3.43 | 3.01 |
| Aa | 3.13 | 3.13 | 2.99 | 3.19 | 2.92 | 3.59 | 3.07 |
| A | 3.21 | 3.22 | 3.12 | 3.37 | 3.11 | 3.72 | 3.23 |
| Baa | 3.40 | 3.41 | 3.37 | 3.72 | 3.37 | 3.94 | 3.50 |
| Utility Preferred Stocks—High-grade | 3.94 | 3.98 | 3.89 | 4.09 | 3.85 | 4.45 | 4.01 |
| Medium-grade | 4.23 | 4.29 | 4.19 | 4.51 | 4.17 | 4.87 | 4.43 |
| 24 Electric Utility Common Stocks | 4.53 | 4.58 | 4.37 | 5.23 | 4.50 | 5.72 | 5.01 |
| 30 Gas Utility Common Stocks | 4.44 | 4.70 | 4.29 | 5.22 | 4.64 | 5.66 | 4.74 |

*Approximate date.

Latest available Moody indices are used for utility bonds and stocks; Standard & Poor's index for government bonds.

## MAY UTILITY FINANCING

### PRINCIPAL PUBLIC OFFERING OF ELECTRIC AND GAS UTILITY SECURITIES

| Date | Amount | Description | Price To Public | Underwriting Spread | Offering Yield | Moody Rating | Indicated Success of Offering |
|---|---|---|---|---|---|---|---|
| | | *Mortgage Bonds* | | | | | |
| 5/11 | $12.0 | Georgia Power Co. 1st. 3⅜s, 1985 .... | 101.03 | .64C | 3.32% | A | d |
| 5/11 | 20.0 | Jersey Central P.&L. 1st 3⅛s, 1985 .. | 102.82 | .54C | 3.35 | A | d |
| 5/18 | 30.0 | Ohio Edison 1st 3¼s, 1985 ..... | 100.57 | .47C | 3.22 | Aa | c |
| 5/23 | 41.0 | So. Calif. Edison Conv. Deb. 3¼, 1970 | 100.00 | * | 3.25 | A | * |
| 5/24 | 10.0 | Potomac Elec. Pr. 1st 3⅜, 1990..... | 102.60 | .39C | 3.25 | Aa | d |
| 5/25 | 15.0 | Alabama Pr. 1st 3⅛s, 1985 ..... | 102.44 | .54C | 3.37 | A | c |
| 5/25 | 60.0 | Detroit Edison Gen. 3¼s, 1980 ..... | 100.00 | .61C | 3.25 | Aa | d |
| 5/26 | 6.0 | Brockton Edison 1st & CT 3⅜, 1985 .. | 101.42 | 1.00C | 3.30 | Aa | d |
| 5/26 | 8.0 | Wash. Gas Light Ref. 3½s, 1980 .... | 101.68 | .75C | 3.40 | A | d |
| | | *Preferred Stocks* | | | | | |
| 5/19 | 10.0 | Public Serv. of Oklahoma 4.24% .... ($100 Par) ..... | 101.19 | 1.17C | 4.19 | — | a |
| 5/23 | 3.0 | Wisconsin P. & L. 4.40% ($100 Par) | 102.75 | N | 4.28 | — | ** |
| | | | | | | *Earnings-Price Ratio* | |
| | | *Common Stocks—Subscription Offerings* | | | | | |
| 5/12 | 10.0 | Florida Power Corp. ..... | 43.00 | N | 3.72 | 5.15 | — |
| 5/12 | 4.1 | Iowa Public Service ..... | 15.50 | + | 5.16 | 7.09 | — |
| 5/23 | 6.6 | Wisconsin Power & Light ..... | 25.00 | N | 5.12 | 7.04 | — |
| 5/24 | 10.0 | Potomac Electric Power ..... | 19.50 | .25N | 5.13 | 6.00 | — |
| 5/25 | 6.9 | Public Service of New Hampshire .. | 16.75 | .35N | 5.37 | 5.56 | — |

C—Competitive. N—Negotiated. a—Reported well received. c—Reported that the issue sold somewhat slowly. d—Reported that issue sold slowly. *Offered to preferred and common stockholders on rights basis, not underwritten. **Offered on rights basis to preferred stockholders and employees, with underwriting and dealer compensation. +Not underwritten.

### SUMMARY—MAY NEW-MONEY FINANCING
(In Millions)

| | Offered to Stockholders | Sold to Public | Sold Privately | Total Financing |
|---|---|---|---|---|
| ***Electric Companies*** | | | | |
| Bonds | $41 | $140 | — | $181 |
| Preferred Stock | 3 | 10 | — | 13 |
| Common Stock | 37 | — | — | 37 |
| Total | $81 | $150 | — | $231 |
| ***Gas Companies*** | | | | |
| Bonds | — | $ 8 | $14 | $ 22 |
| Preferred Stock | — | — | — | — |
| Common Stock | — | — | — | — |
| Total | — | $ 8 | $14 | $ 22 |
| Total Electric and Gas | $81 | $158 | $14 | $253 |

Refunding operations (electric utility bonds) totaled $13,000,000.
Source of data—Irving Trust Company.

The conversion to local automatic dialing is not yet completed, and national toll dialing is just getting under way. This improvement in service will mean additional costs, thus requiring further upward revision in rates. Instead of waiting until there is any sharp decline in net earnings, the telephone companies are watching the situation very closely with a view to getting prompt and moderate relief as needed. They have discovered in the past that if there is too much delay so that large increases must be requested, this is apt to arouse public opposition.

Technical engineering progress in the industry continues at a rapid pace. Perfection of the tiny transistor to replace much larger vacuum tubes, is a revolutionary development. Connected with suitable circuits and using only a small amount of power, the transistor will amplify, modulate, or generate with great efficiency and economy, the electrical currents required for communication. Another important factor is the extension of so-called "carrier" systems. For some time now the industry has been making use of carriers which will provide for the transmission of 1,800 telephone conversations over one pair of conductors, in one direction, by use of different frequencies. Even better ones are on the way. When applied to the coaxial cable, this carrier system gives the coaxial cable (with its eight units) a capacity of 5,400 telephone circuits.

INTERNATIONAL communications have been handicapped by the effects of weather and static on radiotelephone conversations. The new telephone cable (first of its kind) being laid between the United States and Europe by the Bell system will be equipped at frequent intervals with telephone repeaters, and it is being so carefully built that it should not require any maintenance for decades.

A huge field for improvement and expansion is in equipping automobiles, trucks, etc., with telephones. Already these have been installed in 300,000 business vehicles—passenger trains, harbor craft and pleasure boats, service trucks, etc.—and another 15,000 in private cars. This branch of the service is still in its infancy, but with solution of some technical problems it should become profitable to the telephone companies as well as to subscribers. Another development of "wireless" telephone service would be in the home itself, where telephone conversations might be relayed to any part of the house without wires by some such device as the military "walkie-talkie." In the office this idea is being applied on a small scale by employing a small microphone and tiny speaker, permitting a busy executive to talk and listen without lifting his phone off the cradle—unless he wants the conversation to be private.

IN addition to these new service methods which should increase telephone earnings, the industry's growth will continue to reflect the rapid increase in population and in the construction of new homes, as well as by the increase in the number of telephones in each home. The telephone industry should also be a major beneficiary of the increasing trend toward decentralization of industry and population.

In concluding, Mr. Power quoted a "science fiction" forecast by Harold S. Osborne, who until recently was chief engineer of the Bell system:

> Let us say that in the ultimate, whenever a baby is born anywhere in the world, he is given at birth a number which will be his telephone number for life. As soon as he can talk, he is given a watch-like device with ten little buttons on one side and a screen on the other. Thus equipped, at any time when

he wishes to talk with anyone in the world, he will pull out the device and punch on the keys the number of his friend, then, turning the device over, he will hear the voice of his friend and see his face on the screen, in color and in three dimensions.

## *Analysis of Electric Utility Trends in 1954*

THE Edison Electric Institute recently published its *Statistical Bulletin* for the year 1954, in about the same format as last year, and a brief summary may be of interest.

The report indicates that while additions to kilowatt capacity were 20 per cent larger than in 1953, the amount of plant retired jumped 62 per cent; hence the net increase in total capacity was only 11 per cent.

Regarding use made of plant, electric output of steam plants increased 8 per cent, and hydro power about 2 per cent, the total gain being less than 7 per cent; however, peak load increased over 9 per cent.

The number of customers increased less than 3 per cent, hence the increase in output was largely due to greater use per customer. This was particularly true for residential customers, who increased their average annual usage nearly 9 per cent to a new high of 2,549 kilowatt-hours. However, the average annual residential bill increased less than 7 per cent, indicating that the average kilowatt-hour rate declined about 2 per cent for domestic customers. For all customers, including commercial and industrial, there was no change in the average kilowatt-hour rate of 1.77 cents.

Referring to efficiency of operation, the amount of coal necessary to produce one kilowatt-hour dropped from 1.06 pounds in 1953 to .99 pound in 1954. This resulted from the substantial amount of new and efficient steam-generating capacity installed during the year and the retirement of considerable inefficient capacity.

TURNING to the financial statistics: while revenues gained about 6 per cent, increased operating efficiency held the increase in expenses to less than 3 per cent.

However, depreciation jumped 12 per cent due to the substantial amount of new plant, and taxes were up over 7 per cent. Thus the industry did not obtain the full advantage of low operating costs, since total deductions increased about 5 per cent. But even the one per cent differential between the increases in revenues and deductions permitted a gain of over 10 per cent in electric operating income. Net from gas and other services gained 9 per cent.

A 35 per cent increase in the small item of "other income" was about sufficient to offset the increase of over 13 per cent in fixed charges so that a gain of well over 10 per cent was retained for net income. With preferred dividend payments up 5 per cent and common dividends 11 per cent, the balance for surplus gained nearly 13 per cent.

Construction expenditures showed a slight decline from the previous year: The amount spent for production plant dropped 8 per cent, while expenditures for transmission and distribution plant increased 5 per cent and 6 per cent, respectively.

Regarding methods of financing, there was a 7 per cent decline in debt financing and a drop of one-third in common stock issuance, while the amount of preferred stock issues nearly doubled. Total financing was down about 4 per cent.

## RECENT FINANCIAL DATA ON GAS UTILITY STOCKS

| 1954 Rev. (Mill.) | | | 5/31/55 Price About | Dividend Rate | Approx. Yield | Share Earnings* Current Period | % Increase | 12 Mos. Ended | Price-Earns. Ratio | Div. Payout | Approx. Common Stock Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Pipelines* | | | | | | | | | |
| $ 4 | O | Alabama-Tenn. Nat. Gas | 19 | $ .60 | 3.2% | $1.65 | 25% | Mar. | 11.5 | 36% | 40% |
| 14 | O | East. Tenn. Nat. Gas | 10 | .60 | 6.0 | .54 | 35 | Mar. | 18.5 | 111 | 13 |
| 44 | S | Mississippi Riv. Fuel | 58 | 2.80 | 4.8 | 2.90 | 21 | Mar. | 20.0 | 97 | 54 |
| 48 | S | Southern Nat. Gas | 34 | 1.60 | 4.7 | 1.78 | D15 | Mar. | 19.1 | 90 | 26 |
| 143 | O | Tenn. Gas Trans. | 36 | 1.40 | 3.9 | 1.93 | 33 | Mar. | 18.7 | 73 | 20 |
| 150 | O | Texas East. Trans. | 27 | 1.40 | 5.2 | 1.74 | NC | Mar. | 15.5 | 80 | 21 |
| 68 | O | Texas Gas Trans. | 22 | 1.00# | 4.5 | 1.65 | 6 | Mar. | 13.3 | 61 | 28 |
| 63 | O | Transcont. Gas P. L. | 29 | 1.40 | 4.8 | 2.11 | 17 | Dec. | 13.7 | 66 | 21 |
| | | Averages | | | 4.6% | | | | 16.3 | 77% | |
| | | *Integrated Companies* | | | | | | | | | |
| 122 | S | American Nat. Gas | 53 | $2.00 | 3.8% | $3.66 | 11% | Mar. | 14.5 | 55% | 33% |
| 30 | O | Colo. Interstate Gas | 63 | 1.25 | 2.0 | 2.69 | 42 | Mar. | 23.4 | 46 | 29 |
| 260 | S | Columbia Gas System | 17 | .90 | 5.3 | 1.10 | 49 | Mar. | 15.5 | 82 | 42 |
| 9 | O | Commonwealth Gas | 8 | (a) | 4.0a | .55 | 15 | Dec. | 14.5 | — | 69 |
| 10 | A | Consol. Gas Util. | 13 | .75 | 5.8 | .89 | D25 | Jan. | 14.6 | 84 | 59 |
| 213 | S | Consol. Nat. Gas | 34 | 1.50 | 4.4 | 2.98 | 25 | Mar. | 11.4 | 50 | 64 |
| 144 | S | El Paso Nat. Gas | 49 | 2.00 | 4.1 | 1.92 | D36 | Mar. | — | 104 | 22 |
| 34 | S | Equitable Gas | 27 | 1.40 | 5.2 | 1.90 | 3 | Mar. | 14.2 | 74 | 36 |
| 12 | O | Kansas-Neb. Nat. Gas | 37 | 1.20 | 3.2 | 1.30 | D24 | Dec. | — | 92 | 31 |
| 78 | S | Lone Star Gas | 31 | 1.40 | 4.5 | 1.89 | 4 | Mar. | 16.4 | 74 | 42 |
| 22 | S | Montana-Dakota Utils. | 28 | 1.00 | 3.6 | 1.48 | 21 | Mar. | 18.9 | 68 | 31 |
| 18 | O | Mountain Fuel Supply | 27 | 1.00 | 3.7 | 1.42 | 4 | Dec. | 19.0 | 70 | 55 |
| 64 | A | National Fuel Gas | 20 | 1.00 | 5.0 | 1.45 | 13 | Mar. | 13.8 | 69 | 58 |
| 89 | S | Northern Nat. Gas | 42 | 2.00 | 4.8 | 3.13 | 36 | Mar. | 13.4 | 64 | 32 |
| 37 | S | Oklahoma Nat. Gas | 23 | 1.20 | 5.2 | 1.64 | 39 | Mar. | 14.0 | 73 | 32 |
| 87 | S | Panhandle East. P. L. | 80 | 3.00# | 3.8 | 4.09 | NC | Mar. | 19.6 | 73 | 33 |
| 10 | O | Pennsylvania Gas | 21 | 1.00 | 4.8 | 1.79 | 126 | Dec. | 11.7 | 56 | 100 |
| 146 | S | Peoples Gas Lt. & Coke | 157 | 7.00 | 4.5 | 11.07 | D1 | Mar. | 14.2 | 63 | 36 |
| 27 | O | Southern Union Gas | 22 | 1.00 | 4.5 | 1.33 | 39 | Dec. | 16.5 | 75 | 34 |
| 215 | S | United Gas Corp. | 32 | 1.50 | 4.7 | 1.99 | D5 | Mar. | 16.1 | 75 | 42 |
| | | Averages | | | 4.4% | | | | 15.6 | 71% | |
| | | *Retail Distributors* | | | | | | | | | |
| 23 | A | Alabama Gas | 32 | $1.28 | 4.0% | $1.90 | 17% | Apr. | 16.8 | 67% | 43% |
| 42 | A | Ark. Louisiana Gas | 16 | .50 | 3.1 | .49 | D27 | Mar. | — | 102 | 49 |
| 36 | O | Atlanta Gas Light | 25 | 1.20 | 4.8 | 2.16 | 48 | Dec. | 11.6 | 56 | 36 |
| 46 | S | Brooklyn Union Gas | 34 | 1.80 | 5.3 | 2.59 | 8 | Mar. | 13.1 | 69 | 46 |
| 29 | O | Central Elec. & Gas | 16 | .80 | 5.0 | 1.35 | 23 | Mar. | 11.9 | 59 | 16 |
| 10 | O | Central Indiana Gas | 15 | .80(b) | 5.3 | 1.20 | 90 | Mar. | 12.5 | 67 | 62 |
| 51 | O | Gas Service | 26 | 1.36 | 5.2 | 1.86 | 32 | Dec. | 14.0 | 73 | 39 |
| 6 | O | Hartford Gas | 40 | 2.00 | 5.0 | 3.08 | 27 | Dec. | 13.0 | 65 | 52 |
| 14 | O | Houston Nat. Gas | 25 | 1.00 | 4.0 | 2.15 | 6 | July | 11.6 | 47 | 22 |
| 14 | O | Indiana Gas & Water | 17 | .70 | 4.1 | 1.28 | 16 | Mar. | 13.3 | 55 | 46 |
| 6 | A | Kings Co. Lighting | 15 | .80 | 5.3 | 1.12 | D12 | Mar. | 13.4 | 71 | 27 |
| 38 | S | Laclede Gas | 13 | .60 | 4.6 | .98 | 4 | Mar. | 13.3 | 61 | 37 |
| 31 | O | Minneapolis Gas | 27 | 1.30 | 4.8 | 1.62 | 20 | Mar. | 16.7 | 80 | 40 |
| 13 | O | Mississippi Valley Gas | 19 | 1.00(d) | 5.3 | 1.62 | 11 | Mar. | 11.7 | 62 | 29 |
| 8 | O | Mobile Gas Service | 24 | .90 | 3.8 | 1.59 | 2 | Mar. | 15.1 | 57 | 31 |
| 7 | O | New Haven Gas | 31 | 1.60 | 5.2 | 2.58 | 38 | Dec. | 12.0 | 62 | 64 |
| 9 | O | New Jersey Nat. Gas | 23 | 1.00E | 4.3 | 1.87 | 201 | Dec. | 12.3 | 53 | 26 |
| 62 | O | North. Illinois Gas | 19 | .80 | 4.2 | 1.17 | NC | Mar. | 16.2 | 68 | 48 |
| 183 | S | Pacific Lighting | 40 | 2.00 | 5.0 | 2.88 | 45 | Mar. | 13.9 | 69 | 39 |
| | O | Pioneer Natural Gas | 28 | 1.32 | 4.7 | 1.65 | NC | Mar. | 17.0 | 80 | 47 |
| 12 | O | Portland Gas & Coke | 28 | .90 | 3.2 | 1.72 | D8 | Mar. | 16.3 | 52 | 45 |
| 8 | A | Providence Gas | 10 | .48 | 4.8 | .52 | 27 | Dec. | 19.2 | 92 | 62 |
| 6 | O | Seattle Gas | 15 | .40 | 2.7 | .66 | D14 | Mar. | 22.7 | 61 | 60 |
| 8 | O | South Jersey Gas | 26 | 1.20 | 4.6 | 1.62 | 17 | Feb. | 16.0 | 74 | 52 |
| 23 | S | United Gas Improvement | 37 | 2.00 | 5.4 | 2.11 | D5 | Mar. | 17.5 | 95 | 63 |
| 33 | S | Washington Gas Light | 40 | 2.00 | 5.0 | 2.91 | 40 | Mar. | 13.7 | 69 | 38 |
| | | Averages | | | 4.6% | | | | 14.8 | 68% | |

## RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER UTILITIES

| 1954 Rev. (Mill.) | | | 5/31/55 Price About | Dividend Rate | Approx. Yield | Share Earnings* Current Period | % Increase | 12 Mos. Ended | Price-Earns. Ratio | Div. Payout | Approx. Common Stock Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ***Communications Companies*** | | | | | | | | | |
| | | *Bell System* | | | | | | | | | |
| $4,785 | S | Amer. T. & T. (Cons.) .. | 184 | $9.00 | 4.9% | $12.10** | 3% | Feb. | 15.2 | 74% | 65% |
| 220 | A | Bell Tel. of Canada .... | 49 | 2.00 | 4.1 | 2.43 | 5 | Dec. | 20.2 | 82 | 62 |
| 37 | O | Cin. & Sub. Bell Tel. .... | 86 | 4.50 | 5.2 | 5.16 | 26 | Dec. | 16.7 | 87 | 100 |
| 163 | A | Mountain Sts. T. & T. .. | 128 | 6.60 | 5.2 | 7.71 | 11 | Mar. | 16.6 | 86 | 77 |
| 259 | A | New England T. & T. .... | 139 | 8.00 | 5.8 | 7.83 | 6 | Mar. | 17.8 | 102 | 56 |
| 632 | S | Pacific Tel. & Tel. ..... | 139 | 7.00 | 5.0 | 9.29** | 21 | Feb. | 15.0 | 75 | 59 |
| 81 | O | So. New England Tel. .. | 43 | 2.00 | 4.7 | 2.18 | 8 | Dec. | 19.7 | 92 | 67 |
| | | Averages ..... | | | 5.0% | | | | 17.3 | 85% | |
| | | *Independents* | | | | | | | | | |
| 10 | O | Calif. Water & Tel. ..... | 19 | $1.00 | 5.3% | $1.52 | 4% | Feb. | 12.5 | 66% | 38% |
| 12 | O | Central Telephone ..... | 18 | .90 | 5.0 | 1.65 | 20 | Mar. | 10.9 | 55 | 24 |
| 35 | O | Continental Tel. ..... | 26 | 1.00 | 3.8 | 2.10 | 36 | Dec. | 12.4 | 48 | 23 |
| 3 | O | Florida Telephone ..... | 17 | .80 | 4.7 | 1.07 | 40 | Dec. | 15.9 | 75 | — |
| 143 | S | General Telephone ..... | 56 | 1.92 | 3.4 | 3.13** | 13 | Apr. | 17.9 | 61 | 37 |
| 5 | O | Inter-Mountain Tel. ..... | 15 | .80 | 5.3 | .92 | 26 | Dec. | 16.1 | 86 | 64 |
| 17 | S | Peninsular Tel. ..... | 43 | 1.80 | 4.2 | 2.52 | 17 | Mar. | 17.1 | 71 | 41 |
| 16 | O | Rochester Tel. ..... | 19 | 1.00 | 5.3 | 1.22 | D1 | Dec. | 15.6 | 66 | 35 |
| 7 | O | Southwestern Sts. Tel. ... | 21 | 1.00 | 4.8 | 1.31 | 19 | Mar. | 16.0 | 76 | 34 |
| 24 | O | United Utilities ..... | 22 | 1.12 | 5.1 | 1.57** | D3 | Mar. | 14.0 | 71 | 35 |
| 222 | S | Western Union Tel. ..... | 25 | 1.00 | 4.0 | 1.89** | 12 | Dec. | 13.2 | 53 | 83 |
| | | Averages ..... | | | 4.6% | | | | 14.7 | 66% | |
| | | ***Transit Companies*** | | | | | | | | | |
| 27 | A | Capital Transit ..... | 10 | $ .80 | 8.0% | $ .75 | D23% | Mar. | 13.3 | 107% | 82% |
| 14 | O | Cincinnati Transit ..... | 5 | .75 | 15.0 | .93 | D17 | Dec.'53 | 5.4 | 81 | 84 |
| 9 | O | Dallas Ry. & Terminal .. | 12 | 1.40 | 11.7 | 2.21 | 21 | Dec. | 5.4 | 63 | 71 |
| 227 | S | Greyhound Corp. ..... | 16 | 1.00 | 6.3 | 1.40 | 19 | Mar. | 11.4 | 71 | 82 |
| 26 | O | Los Angeles Transit .... | 15 | 1.00 | 6.7 | 1.20 | 4 | Dec.'53 | 12.5 | 83 | 88 |
| 30 | S | Nat'l. City Lines ..... | 23 | 1.40 | 6.1 | 2.35 | 26 | Dec.'53 | 9.8 | 60 | 82 |
| 73 | O | Phila. Transit ..... | 12 | .30 | 2.5 | Deficit | — | Dec.'53 | — | — | 25 |
| 7 | O | Rochester Transit ..... | 4½ | .40 | 8.9 | .44 | D23 | Dec. | 10.2 | 91 | 38 |
| 27 | O | St. Louis P. S. ..... | 15 | 1.40 | 9.3 | 1.22 | 30 | Dec.'53 | 12.3 | 115 | 90 |
| 18 | S | Twin City R. T. ..... | 18 | 1.60 | 8.9 | .22 | NC | Dec.'53 | — | — | 43 |
| 25 | O | United Transit ..... | 4 | — | — | .73 | 30 | Dec.'53 | 5.5 | — | — |
| | | Averages ..... | | | 8.3% | | | | 9.5 | 84% | |
| | | ***Water Companies*** | | | | | | | | | |
| | | *Holding Companies* | | | | | | | | | |
| 34 | S | American Water Wks. .. | 10 | $ .50 | 5.0% | $ .87 | D4% | Mar. | 11.5 | 57% | 16% |
| 4 | O | N. Y. Water Service .... | 64 | .80 | 1.3 | 1.76 | 30 | Mar. | — | 45 | 32 |
| | | *Operating Companies* | | | | | | | | | |
| 4 | O | Bridgeport Hydraulic ... | 33 | 1.60 | 4.8 | 1.49 | D5 | Dec. | 22.1 | 107 | 53 |
| 11 | O | Calif. Water Service .... | 41 | 2.20 | 5.4 | 2.47 | 1 | Mar. | 16.6 | 89 | 29 |
| 8 | S | Hackensack Water ..... | 44 | 2.00 | 4.5 | 3.26 | D8 | Dec. | 13.5 | 61 | 41 |
| 5 | O | Jamaica Water Supply .. | 40 | 1.80 | 4.5 | 2.98 | 9 | Mar. | 13.4 | 60 | 22 |
| 4 | O | New Haven Water ..... | 61 | 3.00 | 4.9 | 4.42 | 76 | Dec. | 13.8 | 68 | 58 |
| 6 | O | Phila. & Sub. Water .... | 37 | 1.00(c) | 2.7 | 2.45 | — | Dec. | 15.1 | 41 | 22 |
| 9 | O | Scranton-Springbrook ... | 20 | .90 | 4.5 | 1.30 | D4 | Mar. | 15.4 | 69 | 31 |
| 4 | O | Southern Calif. Water .. | 14 | .65 | 4.6 | .94** | D1 | Dec. | 14.9 | 69 | — |
| | | Averages ..... | | | 4.3% | | | | 16.0 | 75% | |

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. D—Decrease. *Earnings are calculated on present number of shares outstanding, except as otherwise indicated. **On average shares. #—A 2 per cent stock dividend was also paid December 31, 1954, and in previous year. (a)—Paid 4 per cent stock dividend. (b)—Paid 10 per cent stock dividend. (c)—Paid 5 per cent stock dividend. (d)—Paid 25 per cent stock dividend. NC—Not comparable. E—Estimated.

# What Others Think

## "Cost of Money" as the Determinant of Public Utility Rates

THE traditional method of setting public utility rates is to arrive at a rate base and a rate of return on that base, determine what earnings result from applying the rate of return to the rate base, and then set utility rates that will result in those earnings. There has been much controversy over the proper rate base and relatively little over the "going" rate of return. In recent years, however, the determination of the rate of return has been opened up to a fuller consideration of the "cost of money": what the company must pay to obtain the money to finance its investments. Harold M. Somers, professor of economics and dean of the University of Buffalo School of Business Administration, sees, in this development, "consequences which may lead to a complete revision of the technique of administrative agencies in setting utility rates." In an article, "Cost of Money as the Determinant of Public Utility Rates," in the *Buffalo Law Review* (Volume 4, No. 3), spring edition, Dean Somers develops this view at some length, relating it in particular to utility regulation in the state of New York. He says:

> In New York, the public service commission has retreated to a strict cost basis, thus virtually eliminating the problem of valuation. Since the resulting revenue may be inadequate under present conditions if the rate of return is limited to, say, 5 per cent, the expedient of modifying the rate of return rather than the valuation of property has ostensibly been employed. One of the tasks of the agency is now supposed to be that of ensuring sufficient revenue to prevent a flight of capital from the public utilities and to attract sufficient capital for necessary improvement and expansion. Thus the prospective investor becomes the key figure and the "cost of money," broadly interpreted, is the crucial item of evidence. The emphasis throughout is on future prospects and how they influence a potential investor. Although "cost" is used as the rate base there is actually a concession made to replacement value in the broadest sense—the value of replacement of the capital funds necessary to the business.

BY way of illustration, Dean Somers takes the most recent example of rate making in New York: the decision of the public service commission on the motion of the New York Telephone Company for approval of increases in rates

and charges. The decision, adopted August 5, 1954, denied the company's motion. (Recently, the appellate division of the New York supreme court, ruling on the appeal in this case, held that the New York commission erred when it refused to accept and consider evidence of current value with respect to the New York Telephone Company properties.)

THE author admits that the public service commission has not denied that it must take account of changing economic forces, but that its reliance on the original cost policy has none the less been very strict. It insists that economic forces must be considered only to the extent of ensuring a certain degree of stability in the dollar return, not in the real return (*i.e.*, a dollar return is that high enough to allow for inflation). The commission insists that the investor in public utility shares anticipated the former rather than the latter when he made his investment. The commission rejects, thereby, the contention that the investor in utility equities is entitled to protection against inflation.

The crucial question, according to the author, is whether current prices are nevertheless to be considered where the governing statute requires consideration of "value." He says:

> The logical problems involved in setting a "fair value" rate base are apparent. The Supreme Court has said that "rates cannot be made to depend upon 'fair value' when the value of the going enterprise depends on earnings under whatever rates may be anticipated." In the ordinary sense, "fair value" must depend on future earnings. Yet future earnings are to be determined on the rate base. Thus it becomes impossible to set a "fair value" without knowing the rates, and yet the rates are to be determined by taking account of the "fair value" base. The same logical problems do not arise where "fair value" is narrowly construed to mean reproduction cost or original cost adjusted for general price changes. Prevailing prices, specific or general, can then be used.

THIS circular motion where future earnings are considered impairs the validity of a "fair value" rate base. The author points out, however, that the conclusion that fair value is the end product and not the means of the rate-making process is "fully consistent" with the "flight of capital" doctrine under which the emphasis is on setting earnings at an appropriate level rather than on setting an appropriate base. He says the earnings that prevent a flight of capital will yield a certain value for the property but that value may not be a "fair" one from the stockholder viewpoint.

The author adds:

> It should be pointed out that a fair return to investors is not necessarily fair to consumers. Utility rates set by the "cost-of-money" approach may well be unfair to consumers, hence the "cost of money" does not provide a conclusive method of determining such rates. The same can be said of the rate base method. Neither method gives assurance of fairness to consumers.
>
> There is also a question whether the rate structure that would prevent a "flight of capital" is the same as that which would achieve what may be called an "inflow of capital." It is the latter that is important in a dynamic economy. The commission presumably wishes the utilities to expand as the needs arise and as innovations become available. . . . But if the commission wishes to take account of the necessity of attracting capital in determining the

proper rate of return on original cost, the earnings and dividends in relation to the market prices of the equity securities are pertinent, rather than earnings or dividends as a percentage of original cost. "Cost of money" cannot be based initially on original cost even if it is to be translated later into a rate of return on the original cost.

To say (as does the New York commission) that evidence of inflation will be used in setting the rate of return to be applied to the cost of the property, does not guarantee that the inflation in plant and equipment is actually taken into account in any way. High percentage rates of return on equities, Dean Somers declares, do not necessarily accompany high plant and equipment prices. The utilities ask for consideration of the rise in commodity and property prices; the commission is willing to consider only the rise, if any, in rates of return on equities.

In respect to this fundamental difference, the author states:

> . . . The current rate of return on equity capital is influenced by *future* inflationary prospects among other things; the fact that prices of plant and equipment are now high compared with some *past* period may not be reflected fully or at all in the current rate of return on equities. Thus consideration of current price levels compared with past price levels does not necessarily show up in the rate of return nor does it give the utilities the relief they are seeking.
>
> In short, price increases that have occurred are not actually reflected in the rate of return in so far as the latter is based on the "cost of money." If an original cost rate base is also used, inflation in plant and equipment prices appears nowhere in the computation.

In computing the cost of capital it is necessary to know how much debt capital and how much equity capital is involved, the author states. The commission looks into the debt ratio and proposes to set rates on the assumption that debt rather than equity capital be used at least partly in financing new capital expenditures. The company may issue shares if it wishes, but the commission does not use the actual capital structure in determining how much income should properly be provided: A hypothetical debt ratio is used for that purpose. Thus, as in the New York Telephone Company Case, the hypothetical debt ratio is of highest importance in setting telephone rates that will yield a rate of return on the cost basis in the neighborhood of 6 per cent, the New York commission's target rate. Dean Somers' article adds:

> The commission is strongly impressed by the fact that the yield on debt capital is generally lower than that on equity capital and that corporate dividends are derived from income that is subject to tax while interest expense is tax free. . . . The cost of money derived through issuance of debt is low relative to the cost of money derived through issuance of equities: Debt is "cheap money" and equities are "dear money," we may say. For reasons of sound business practice the company nevertheless chooses to keep the debt ratio low although that raises the net cost of money as a whole. . . . The company's target in the current case is a debt ratio of 33⅓ per cent while one of the commission's witnesses used a ratio of 45 per cent (the present ratio being 38 per cent). The telephone rates would have to be higher to finance a 33⅓ per cent ratio than a 45 per cent, hence the commission's concern with debt ratio.

THE Buffalo professor suggests that the use of a hypothetical debt ratio in rate making may, in this way, put pressure on management to change the debt ratio in a direction it considers undesirable, for the company is treated as if it had a less expensive debt ratio than it actually has. It is penalized for its managerial decision. On the other hand, the author states, the commission is well aware of the fact that a high debt ratio has its dangers. It speaks of the desirability of leaving a margin of unused credit for future use. "Too high a debt ratio as a long-time policy may well be as expensive as too low a one." In time of depression, the fixed obligation of debt could lead to drastic legal consequences compared with the flexibility inherent in equity capital.

The author raises one further question concerning the commission's refusal to accept the company's existing or prospective debt ratio as the basis for the computation of rate of return. He states:

> . . . The commission substitutes its own judgment as to capital structure for the management's judgment. Since debt ratio is unquestionably a matter on which reasonable men may differ, and comes within the scope of managerial discretion, there is doubt whether the commission should attempt to impose its own judgment in a question of this sort.

A similar situation (which relates to the "cost of money") prevailed in the New York Telephone Company Case as to earnings to be permitted over and above the dividends paid out. A commission witness argued for an 80 per cent pay-out of accumulated surplus. A company witness preferred a 65 per cent figure.

On the other hand, the commission takes a "hands-off policy" in the matter of wages. The author wonders if "similar respect should not be accorded managerial judgment in 'cost-of-money' items such as capital structure, debt ratio, pay-out ratio, and the like?"

IT is at this point that the dean of the University of Buffalo School of Business Administration launches into a theory of doing away with the rate base altogether. He proposes the forthright alternative of fixing utility rates directly on the cost of capital. He states:

> The question that arises is whether *any* rate base is needed in a consistent application of the "flight of capital" rule of rate making. The aim is to set a rate which will result in earnings which will prevent a flight of capital for the needs of the business. The process of setting a rate base and then a rate of return is an unnecessary carry-over from the old "fair value" days. Whatever the base, the rate of return will presumably be set so as to result in sufficient earnings to meet the "flight of capital" test. Why then go through the unnecessary motions of setting a base and a rate of return? Why not just decide on the level of earnings which will pay interest on debt and give an adequate return to the equity securities so as to make them sufficiently attractive in the capital market? Much waste effort would be eliminated and all parties would understand clearly what is involved. Motions for introduction of evidence on reproduction cost would no longer have to be denied—they would not have to be proposed in the first place. The evidence to be submitted and considered would be concerned with "cost of money"; *i.e.*, the yield on equity securities that would be necessary to attract capital. From that, together with data on the capital structure (actual or

hypothetical—a point to be settled) could be determined the total desirable earnings. This could then be translated into a rate structure.

It should be pointed out that the device of going directly to the amount of return instead of using a rate base and rate of return is not to be confused with the procedure of setting utility rates without any factual basis whatever. Under the Hope decision [Federal Power Commission *v.* Hope Nat. Gas Co. (1944) 320 US 591, 601, 51 PUR NS 193], the precise path taken by the administrative agency is left open (barring a controlling statutory requirement) as long as there is no abuse of the police power. Just as both original cost and reproduction are consistent with the Hope decision so are other reasonable methods of arriving at the end result. . . .

The article concludes:

. . . in a jurisdiction committed entirely to the "cost-of-money" approach, it matters little whether original cost or reproduction cost is used as the rate base. The rate of return will be adjusted accordingly so as to yield the same total number of dollars; *i.e.*, the number of dollars required to prevent a flight of capital. As long as the rate base and the rate of return are kept inversely related to each other so that their product results in the same dollar figure, any requirement that the commission consider reproduction cost in setting the rate base will be abortive. If the telephone company succeeds in imposing this requirement in the current case, it will still have before it the task of convincing the commission or the court that a lower rate of return on a higher rate base conflicts with the statutory or constitutional standard even though the resulting number of dollars is the same as before and is sufficient to prevent a flight of capital. That will bring us back once more to the wording of the New York statutes and the constitutional aspects of the Hope decision.

THE question, the author says, will then be: Can the commission set rates just sufficient to meet the "cost of money" even though the statute says it must give due regard, among other things, "to a reasonable average return upon the value of the property . . ."? In other words, does the "cost-of-money" approach meet the statutory standard for telephone companies in New York?

—E. W. P.

## Notes on Recent Publications

A DETAILED discussion of the tax problems covering transactions of oil and gas producers from conveyance of property to sale of oil and gas at the wellhead is contained in an attractive text co-authored by Clark W. Breeding and A. Gordon Burton. Notable chapters are: Sharing Arrangements, Intangible Drilling Costs, Depletion, Partnership, Corporations, Associations, and Unitization Agreements. Although the text is primarily concerned with United States tax law, we note an excellent chapter by Mr. Burton on Canadian taxes, particularly taxation of U. S. nationals operating in Canada. The bibliography for each chapter is very complete and citations to 332 cases make it a first-class reference work as well as text.

TAXATION OF OIL AND GAS INCOME, by Breeding and Burton. Prentice-Hall, Inc. New York, New York. 340 pages. 1954. Price $15.

# The March of Events

## Utility Bar Program Announced

C. Oscar Berry, chairman of the section of public utility law of the American Bar Association, has recently released details of the program of the section meeting, to be held August 21st to August 24th, inclusive, in connection with the annual convention of the American Bar Association in Philadelphia. Headquarters of the section of public utility law and the location of all section meetings and functions will be the Barclay hotel, in Philadelphia.

A special meeting of the council of the section on August 21st at 12 o'clock is to be followed by a panel discussion on the afternoon of August 22nd (2 P.M.) dealing with the report of the standing committee to survey and report on the developments during the year in the field of public utility law. Panel members slated to deal with each utility field were:

Walter E. Craig of Phoenix, Arizona, will report on communications; David K. Kadane, Mineola, New York, on electricity; Willard W. Gatchell, general counsel of the Federal Power Commission—gas; Stanfield B. Johnson, of Washington, D. C.—land transportation; James K. Crimmins, New York city—air transportation; Clarence H. Ross, Chicago, Illinois, chairman of the standing committee, will review the committee's report as a whole.

On the morning of August 23rd (9.30 A.M.), a special session will deal with "Legal Aspects of Atomic Power." Paul W. McQuillen of New York; Harold L. Price, Atomic Energy Commission Division of Licensing; Arvin E. Upton of Washington, D. C.; Everett L. Hollis of New York; William A. W. Krebs, Jr., of the Massachusetts Institute of Technology; John H. McCarthy, chairman of the Michigan commission; Stoddard M. Stevens of New York; and Oscar M. Ruebhausen of New York will take part in the program.

The afternoon session on August 22nd (2 P.M.) was to be given over to a discussion of the national highway program, featuring the following speakers: Austin L. Roberts, Jr., solicitor of the National Association of Railroad and Utilities Commissioners; E. C. Yokley, former counsel for the city of Nashville; and John Lansdale, Jr., counsel for the Ohio Turnpike Commission.

The final session on August 24th will deal with the legal problems in the transportation field. Among the program speakers are Jervis Langdon, Jr., chairman of the Association of Southeastern Railroads, Washington, D. C.; John S.

Burchmore, counsel of the National Industrial Traffic League, Chicago, Illinois; and Edward A. Kaier, general attorney of the Pennsylvania Railroad, Philadelphia, Pennsylvania.

Election of officers and members of the council and other new business were to take place at this session, followed by the annual dinner dance of the section (7 P.M.). Further details may be obtained from the secretary of the section, Henry F. Lippitt, 2nd, 30 Rockefeller Plaza, New York 20, New York.

### Utilities to Deliver Federal Power

THREE electric companies operating in the Minnesota - Iowa - Dakotas area have contracted with the federal Bureau of Reclamation to deliver power from the government's Missouri river dams over their lines to bureau customers.

Participating utilities are Northern States Power Company, Minneapolis; Otter Tail Power Company, Fergus Falls, Minnesota; and Interstate Power Company, Dubuque, Iowa. Rural electric co-operatives, which are preference customers, along with public agencies, for the federal power, took part in negotiations that led to the contracts.

Purchasers of the government-generated power will deal directly with the Bureau of Reclamation, with the privately owned utilities merely granting the use of their transmission lines on a fee basis.

## Alabama

### Gas Rate Increase Asked

A PETITION filed with the state public service commission last month by the Alabama Gas Corporation sought a $1,238,000 annual rate increase beginning June 27th. The utility declared the increase "would yield no additional profit to the Alabama Gas Corporation" and would be "equal to the increased cost which the company is compelled to pay Southern Natural Gas Company."

The requested rate increase is the same amount of increase in gas rates charged by the Southern Natural Gas Company. The federal government approved the gas company's increases, retroactive to April 1st.

"It will be impossible," the company said, "for Alabama Gas Corporation to absorb this substantial increase in the cost of gas it purchases with no compensating increase in rates and maintain its ability to make extensions, finance its operations, and render adequate service to the public."

## Arkansas

### Commission Blocks Rate Boost

AN order handed down by the state public service commission recently held that Arkansas Power & Light Company could not place proposed changes in its fuel clause into effect under bond.

The proposed changes would have meant an immediate increase in rates paid by customers whose bills amounted to more than $8.02 a month and in the wholesale price paid by the rural electric co-operatives who buy their power from Arkansas Power. The utility would have

changed its method of computing bills under the fuel adjustment clause, which permits a utility to raise or lower its rates according to the price it pays for fuel to generate electricity.

Also requested by the firm was a proposal to bring the co-operatives under the fuel adjustment clause for the first time, increasing the co-operatives' power bill by about $200,000 annually.

# Delaware

## Senate Rejects Bill

A BILL which would have given the state public service commission jurisdiction over certain municipal utilities was rejected last month by the state senate. The measure would have given the commission jurisdiction over municipal utilities which run their lines more than a mile beyond city limits.

The bill would have repealed the present law exempting municipal utilities from any commission regulation.

# Maine

## Pike Plans to Stay as Chairman

DESPITE the state legislature's refusal to follow his recommendations for revision of the state's "current value" law on public utility rate fixing, Sumner T. Pike said recently he was not thinking of resigning from his post as chairman of the state public utilities commission.

He had talked last fall of possibly resigning because of the present statutory requirements for fixing utility rates, which he regards as undesirable. Pike, whose term does not expire until December, 1956, said it now seemed "sensible" to stay on.

Instead of being discouraged by the legislature's failure to change the "current value" law, Pike said he was heartened by the strong support proposed changes got in the house. Members of the house voted for a revision bill, but it was overwhelmingly rejected in the state senate. The measure died when a conference committee was unable to agree.

# Missouri

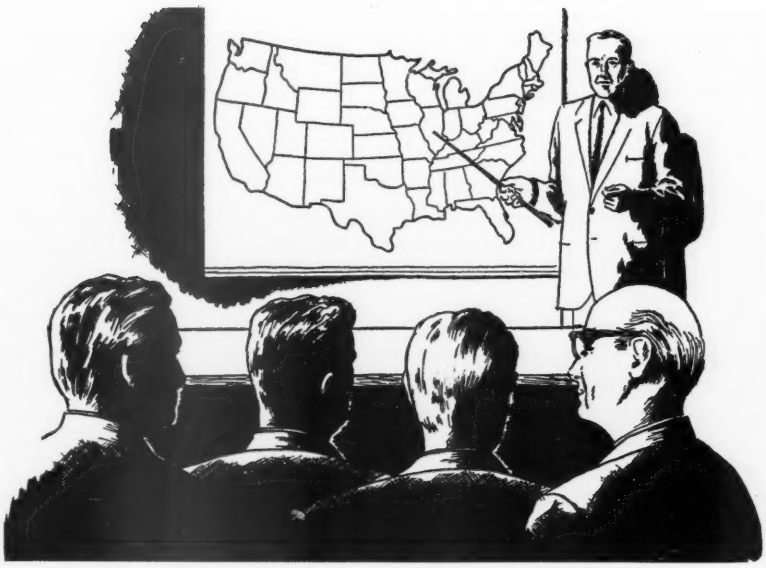
## To Vote on Power Plant Bonds

RESIDENTS of Independence will vote on August 16th on a proposed $10,000,000 revenue bond issue for expansion of its municipal power plant and purchase of lines now held by the Kansas City Power & Light Company.

The city plans to construct a new power plant near the Missouri river in order to use river water from that source to cut costs of power production.

The bond funds would be used to acquire a site for a new plant; construct a plant, which probably will consist of two 22,500-kilowatt generators; purchase existing lines and rights of way of Kansas City Power & Light in the city and in the areas proposed for annexation; and make general improvements of the city's power facilities.

The present plant would be held on a stand-by basis.



# Progress of Regulation

## *Regulatory Trends*

NEW YORK has moved closer to the "fair value" states as the result of the decision rendered May 25th by the appellate division of the state supreme court, by a divided opinion (3 to 2), overturning commission orders in the New York Telephone Company rate case reported in 5 PUR3d 33. The commission had rejected a proposed rate increase and, as a basis for its decision, had used an original cost rate base. The court's decision rests upon an interpretation of a statute relating to telephone and railroad companies which differs from statutes governing other types of utilities. Consequently, if this decision is upheld by the court of appeals, New York, in the absence of legislative action, may be only partly a "fair value" state.

### *Lifting of Federal Restriction*

The dissimilar statutory provisions applying to different utilities presented no difficulty during the years when, under the doctrine of Smyth *v.* Ames (169 US 466), a fair value rate base was required to meet constitutional standards. Then came the Supreme Court rulings in the Natural Gas Pipeline Case (42 PUR NS 129) and the Hope Case (51 PUR NS 193) freeing regulatory commissions from the necessity of considering current costs in order to avoid confiscation. That shifted the question of fair value to the states.

Although under state laws some courts and commissions adhered to the fair value rule, the New York commission was among those which adopted an original cost rate base. It rejected evidence of reproduction cost as a measure of fair value.

*Statutory Rate Base Requirements*

The New York statute applying to telephone companies and railroads requires the commission to give due regard, among other things, to a reasonable return upon the "value of the property actually used in the public service." The statutes relating to other utilities require a reasonable return upon "capital actually expended."

The apparent inconsistency between the standard set up in the statute relating to gas and electric corporations and that set up in the sections relating to railroads and telephone companies had been pointed out by the governor and he had suggested a correction by the legislature. Legislative investigations of these statutes had been undertaken. Eleven legislative sessions, however, had come and gone since the Hope Case and yet this "value" reference had remained. Stronger proof, said the court, could not be found to support the conclusion that the legislature was satisfied with such language.

The New York court did not view the Hope decision as a bar to use of fair value or as an attempt to dictate legislative policy as to rate making for the individual states, beyond the requirements that rates should be fair and reasonable. With the mandate of the Supreme Court as to fair value still extant, the hands of the legislature were fettered during that period, and hence its inaction meant little. After the decision in the Hope Case, the legislature was completely free to adopt some other standard that would apply to telephone and railroad companies, other than the concept of a return on the fair value of the property used in the public service.

*What Is Meant by Value*

The cost of property, said the court, is not the test of its value. It may be worth more or less, or worth and cost may at times coincide. The word "value" as used in the statute under consideration, said the court, presented a semantic difficulty. Obviously it was not used in the sense envisaged in ordinary speech, nor could it be accurately and precisely defined. Nevertheless, it is a term well understood and applied by rate makers for over forty years. Hence, its lack of precision as a term of measurement constituted no bar to following the directive of the statute. The court referred to the fact that at least nine other states were now using it as a rate base; namely, Pennsylvania, North Dakota, Indiana, Ohio, Maryland, Illinois, Maine, North Carolina, and Delaware.

Fairly construed, said the court, the words "value of the property used in the public service" can only mean present value. The verb "used" in the context is a verb of continuing meaning. It could not refer in any grammatical or logical sense merely to the past. Hence, whether the language is taken as an adaptation of the Supreme Court rule before the Hope Case was decided,



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or whether it be taken as language which the legislature framed entirely on its own, reproduction cost less depreciation is an indispensable ingredient to be considered in fixing the present value of property actually used in the public service. This was said to be true because it is not possible, or at least not practicable, to prove market or exchange value. Reproduction cost can be shown only by opinion evidence, and this type of evidence the commission had rejected.

It was argued that the legislature could have had in mind the use of the terms "value" and "capital expended" interchangeably to mean original cost less depreciation. The commission said it was inconceivable that the legislature intended that telephone rates should be fixed at any different standard than those of electric, gas, or water utilities.

The court replied that the difficulty with this statement, and the argument implied, was that on the face of it the legislature had done the very thing the commission deemed to be inconceivable. The commission's view, said the court, meant reading into the statute language that was not there—namely, "capital actually expended"—and discarding language that was actually there; namely, "value of property actually used in the public service." This was said to be beyond the power of the commission and the courts, for it amounts to legislation, not construction.

### *Mandate to Commission*

The company contended that the statutory language was an imperative mandate to the commission. The commission regarded the language as more or less of an "historical accident." It took the view that the language of the statute applying to telephone companies was not mandatory, although it conceded that some rate base or formula was necessarily implied. The court disagreed, stating that the commission undoubtedly had wide discretionary power as to rate making even under the statute, but it could not give "due regard" to the value of property actually used in the public service if some proof of that measure were not before it.

### *Value Prescribed by Other Laws*

The commission also cited reorganization provisions of the statute, establishing fair value as the standard for recapitalization, to show that when the legislature wished to direct a fair valuation rate base, it did so in unequivocal terms. The court saw nothing in that law that supported the position of the commission. It "was not reasonable to assume" that the legislative intent was to deny a fair value standard for rate making, and yet direct such a standard to be used for reorganization and recapitalization. Moreover, the court attached no importance to the legislative abolition in 1950, of a bureau of valuation and research, formerly a part of the commission.

Recent amendments to the Condemnation Law did not seem germane to the problem. They had been enacted to prevent excessive condemnation awards. Dissenting judges, however, considered these laws as the most recent expression of legislative intent. They said that the legislature there described the

rate-making process for all utilities as being based on "capital actually expended." This was in relation to expected income as a factor in appraising property to be acquired.

The decision of the Delaware court in the Diamond State Telephone Case, reviewed in this issue of the FORTNIGHTLY (page 799), is another recent expression of judicial views in favor of a fair value rate base, as is the recently reported decision of the Illinois court in 8 PUR3d 53.

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# *Review of Current Cases*

## Federal Program Resulting in Competition May Not Be Challenged by Electric Companies

THE United States court of appeals for the District of Columbia reversed a district court decision (1 PUR3d 282) and remanded it with directions to dismiss the complaint of electric companies which sought to prevent the Southwestern Power Administration and the Rural Electrification Administration from carrying out an operating and loan arrangement for a federated co-operative to furnish wholesale power to distributing co-operatives in the area.

The electric companies claimed that the competition which they would suffer if the government's contracts were carried out would injure their business and that the contracts violate the loan standards of the Rural Electrification Act and the Flood Control Act.

### *Capacity to Sue*

The court held that the electric companies did not show any interest or injury entitling them to maintain the suit and that, therefore, the lower court should have granted the motion to dismiss the complaint. Their sole complaint was the competition which would result from effectuation of the contract. The court observed that controlling decisions of the United States Supreme Court, dealing with other electric power contracts of the federal government, established that an interest of this kind is not sufficient to enable them to sue to enjoin execution of the government contracts and program.

The companies' charters contain no provision purporting to grant them a monopoly or to protect them from competition by a federal instrumentality. Consequently, the court said, they had no basis for asserting that the competition which would result would be illegal as to them.

The companies also claimed there was an unlawful conspiracy against them by the government officials and agencies. They summarized this claim as one of concerted action among the federal agencies and co-operatives to injure their business by unlawful means, by violations of the Rural Electrification Act and the Flood Control Act. The court held, however, that the conspiracy allegations, based on allegedly unlawful acts in violation of statutes, do not establish a right to sue.

### *Congressional Supervision*

Furthermore, the court held, the statutory scheme embodied in the Rural Electrification Act and the Flood Control Act of 1944, as well as the related appropriations acts, contemplated congressional, rather than judicial, review of the gov-

ernmental activities here in question. These activities were nonregulatory and included disposal of surplus electric power turned over to the Southwestern Power Administration by the Department of the Army. The companies were also held to have no standing to bring this action under the judicial review provisions of the Administrative Procedure Act.

Judge Prettyman dissented on the ground that the court should consider other phases of the jurisdictional problem presented by the case. If these should be resolved in favor of the company, he said, the court should proceed to the merits as the lower court had done. *Kansas City Power & Light Co. et al. v. McKay et al. No. 12067, April 28, 1955.*

## Reproduction Cost Not Accorded Proper Weight In Fixing Fair Value Rate Case

UPON reargument of points considered in a previous decision, the Delaware supreme court held that the fair value determination by the commission did not give sufficient weight to reproduction cost. A previous holding (5 PUR3d 493) that, although the commission erred in rejecting any allowance for cash working capital, the lower court should not have determined the amount, was reaffirmed.

The governing statute sets forth fair value as the criteria for determining the rate base. As to the time for determining such fair value, the court reiterated that fair value meant present fair value. The weight to be given to any and all of the different elements which the statute enumerated depended upon the facts presented in each particular case.

The commission, in reaching its determination, found an amount which was neither original cost nor reproduction cost, but was 12 per cent above original cost and 25 per cent under reproduction cost. The court pointed out that the commission had the duty to see that the utility was keeping the price of its commodity or service within reasonable bounds. On the other hand, the commission had to provide a reasonable return based upon the present fair value of the company's property in an amount sufficient to pay, in addition to the cost of production, a reasonable return to its stockholders and some surplus for necessary expansion.

A large proportion of the company's property was purchased prior to 1946. Costs had increased in a larger proportion than the rate increases granted. The court held that the commission's finding did not properly reflect the impact of inflationary prices upon the value of the property, or upon the cost of replacement. The commission should have accorded more weight to reproduction cost.

The lower court had substituted its own findings for those of the commission with respect to the rate base and working capital allowance. Such substitution was improper, held the court. The findings should have been reversed and remanded to the commission. The fixing of rates which a public utility should be permitted to charge is a legislative act, which the commission is much better qualified to perform than the court.

The power of the court on appeal from an order of the commission is merely to affirm or reverse the order. The court has no authority to amend, modify, substitute, or direct the substitution of another order or findings. *Re Diamond State Teleph. Co. April 20, 1955.*

## Return Allowance on Stable Investment

In authorizing additional revenue for a water company, the Indiana commission said that it would adhere strictly to the legislative will in arriving at a determination of the fair value of the company's plant. To do so, the commission was required to give full consideration to original cost depreciated. Reproduction and current cost factors could be added to the original cost determination.

Any information in possession of the state board of tax commissioners or any local authorities was also permitted to figure in the determination. The commission might elect to include an amount for work in progress plus an allowance for working capital and property held for future use.

*Return on Safe Investment*

Water utilities, the commission noted, provide an opportunity for highly secure investment. With increased demands for new volumes and consequent increases in gross income, it was believed that the company would be an attractive investment for prospective utility security purchasers. The return required would, therefore, be somewhat less than that required by utilities not considered of the volume type.

The commission did not consider a fair return to be like fixed interest paid by a savings bank. The return, it was stated, should be so designed that over reasonable periods the company would receive an aggregate average close to the target amount. Such return would naturally vary from period to period. For a longer-range objective, certain degrees of tolerance must exist. A return which is higher than the indicated fair return by a few hundred dollars does not call for a rate reduction, nor does a similar drop below indicated percentage require contrary action.

The commission thought it was entirely possible, in the period immediately following large capital expenditures and great net additions to a plant, for the return to fall below that generally anticipated or considered reasonable. As the added improvements came into full use, and productive capacity was recognized by the public, who would readily take advantage of the potential volumes available, the net income of the company would be increased to a point where the return over the longer period would be fully adequate. *Re Gary-Hobart Water Corp. No. 25624, March 10, 1955.*

## Rates Based upon Original Cost and Contributions Excluded from Operating Expenses

The Missouri commission has authorized an electric company to increase rates to yield a return of about 6.47 per cent. The increased rates were needed because of higher operating costs, load growth, and high cost of construction.

*Original Cost*

For many years the commission has used an original cost rate base, although it formerly gave consideration to both original cost and reproduction cost. In 1944 the Supreme Court of the United States held in the Hope Natural Gas Company Case, 320 US 591, 51 PUR NS 193, that a commission was not bound to use any single formula in determining rates. Under the statutory standard of "just and

reasonable" it is the result reached, not the method employed, which is controlling, according to that decision.

Since the decision in the Hope Case, the commission has believed that it was free to rely on the original cost standard so long as the rate of return applied to that standard achieved a "just and reasonable" end result. It found nothing in the state statute requiring it to consider reproduction cost.

In using original cost the commission said it was motivated primarily by practical considerations. It believes the reproduction cost new theory lacks definiteness and stability. The commission conceded that if it adopted a reproduction cost rate base, it could apply a lower rate of return than could be applied to original cost and arrive at the same end result. But, it said, there is no reason or necessity for attempting "to beguile or befuddle the public" by applying seemingly low rates of return to inflated rate bases.

*Charitable Contributions*

The company included in its operating expenses amounts for charitable contributions and payments to various chambers of commerce in its service area. The principal contribution was the company's pledge to the Heart of America United Campaign. A company witness stated that, in contributing to that campaign, the company was discharging its responsibility as a citizen and that if the work of the beneficiary agencies was not supported through individual and business contributions, the burden of relief would fall on government, probably in large part on municipal government. This could be discharged only through increased taxes. He further pointed out that the company and its customers receive benefits through the building of better citizens, who will be better customers and who will support a more prosperous community.

The chambers of commerce help the communities to compete with other communities in attracting new industries. The company claimed that unless it helps to promote its own communities, it will lose business and industry to other places.

Unregulated businesses treat these costs as ordinary business expenses which are reflected in the price of goods and services. It has been the commission's policy in rate proceedings, however, to eliminate from operating expenses all contributions.

The commission did not question the propriety or advisability of making the payments but said that it was unable to draw the line between contributions which may benefit the company and those which will probably be nonproductive. It concluded that the benefits, if any, realized by the company by reason of these payments would inure to the stockholders to a greater extent than to the customers. Consequently, it disallowed them as operating expenses. *Re Kansas City Power & Light Co. Case. No. 12,886, April 7, 1955.*

## Telephone Rates Rejected As Resulting in Subsidy to Unprofitable Exchanges

THE Wisconsin commission did not allow a telephone company the entire amount of a proposed rate increase. The rates suggested by the company, the commission said, would have resulted in the more profitable exchanges subsidizing the less profitable ones. The return found reasonable for the entire company was 6.5

per cent. The rates approved for the company's exchanges would permit them to earn returns ranging from the average return of 6.5 per cent to 8 per cent. This was considered within the limits in which the commission could exercise discretion.

*Working Capital Disallowance*

No allowance for working capital was made inasmuch as the company, by billing for service in advance, was able to collect sufficient funds in advance of the due date of its accounts payable.

The company's maintenance expense, the commission ruled, should be allocated among its exchanges in a manner which most closely relates to the expense actually experienced at each exchange in the past. *Re General Teleph. Co. of Wisconsin, 2-U-4291, April 11, 1955.*

## Increased First Step Rates for Domestic Natural Gas Customers Denied

A NATURAL gas company's proposal to increase rates to all customers for the first hundred cubic feet of gas and to decrease the subsequent step rates was disapproved by the Massachusetts Department of Public Utilities in so far as it affected domestic customers. The cost of doing business with such customers exceeded the existing rate for the first step little, if any. The department concluded that the company failed to sustain the proof cast upon it in so far as customer costs were concerned, these being the largest component of the first step cost.

The purpose of the proposed readjustment was to permit the company to lower rates beyond the first step so as to encourage development of the house-heating load. It claimed that a decrease in rates was necessary in order to further its house-heating sales campaign. It further claimed that it could not afford to do so without an increase in other steps. Concerning these arguments, the department said:

> We take an extremely dim view of this approach of respondent. If the lower tail rate were all that would be required in order to sell house-heating gas, we would be the last to stand in the way. However, we consider that it is manifestly improper to subsidize this sales campaign at the expense of the balance of respondent's customers. Other gas companies have realized this, and their stockholders have been sufficiently farsighted to content themselves with an inadequate present return in view of the prospect of long-range improvement.

The department observed that if the company felt that its most fruitful possibilities of future development were in the field of space heating, it might consider what rate modifications it wished to introduce in order to enable it to meet the price competition of other fuels, and such proposals would receive prompt and sympathetic attention. The only limitation insisted upon by the department was that the company make sure that the smaller users should not be required to assume more than their fair share of the burden.

Proposed increases were approved for building heating rate schedules and commercial and industrial schedules. The department believed that the customer component of the cost analysis did not mean so much with respect to these customers. It found that the increase in the initial

step rate under the nondomestic schedules was unimportant to the customers as compared with the savings in their bills which would result from their large consumption. *Re Lynn Gas & E. Co. DPU 10977, April 13, 1955.*

## Company's Rule Prohibiting Unauthorized Telephone Answering Device Upheld

THE Ohio commission passed upon the reasonableness of a telephone company's tariff provision for discontinuance of service if a customer used an unauthorized telephone attachment. A subscriber complaining against service denial operated a vending machine business and needed an answering device to take incoming calls during his absence and to relay messages to incoming customers. To meet that need, he had purchased an instrument known as a tele-magnet. He installed the device in his home and began to use it, and notified the company of his action.

Invoking its tariff provision, the company disconnected service. The customer obtained an injunction against the discontinuance pending final disposition by the commission.

The customer alleged that his device worked properly and efficiently on all occasions, and that it had never failed to so operate. He further asserted that the tele-magnet did not violate the tariff provisions in that it was not connected to the telephone by wires or any mechanical device. The telephone receiver was placed on top of the device. The ringing of the telephone set started the tele-magnet into actual operation by induction. After the machine began to operate, a "T" arm contained in the tele-magnet raised the receiver sufficiently to make a contact. The answering mechanism went into operation and informed the caller as to the whereabouts of the customer and, through the recording device, invited the caller to leave a message, which was recorded.

The company contended that the device was not well designed and that tests indicated it was an inferior piece of equipment. The company also asserted that it could not properly discharge its duty to all subscribers if it did not have complete control over devices attached to its system.

The commission agreed with the company. It was not enough for the customer to show that the actual instrument he was using in his home operated properly or that he was satisfied with it or its workings.

If, in fact, it could adversely affect the service of persons who would have occasion to call the home of the customer, or would cause those persons to be unable to hear or to have other difficulty with service, then the company would be unable to correct such deficiency because of its inability to control the installation of the offending device.

The commission pointed out that the customer's device was admittedly limited in its use to single-party lines and not feasible for use on multiple-party lines. The device would operate only with the 302 handset and was absolutely unable to function with other types of telephone instruments. The company's tariff provision was considered reasonable.

The commission noted that the company had available to its subscribers a device similar to that used by the customer which would provide him with the service he needed. The use of the company's device would impose a duty upon it to serv-

ice it and to maintain its proper operation and be responsible should the improper functioning of that device in any way adversely affect service. The company was held not to have acted improperly in disconnecting the customer's service. *Murray v. Ohio Bell Teleph. Co. Case No. 24,691, April 20, 1955.*

## Coin Box Telephone Service Discontinued for Unlawful Use

THE New York supreme court denied a tavern owner's application for an order directing a telephone company to restore public coin box service in his place of business. The police raided the premises and arrested a customer who was charged with taking "policy slips" for the "numbers game." Subsequently service was discontinued.

### *Customer's Contention*

The former subscriber argued that the person arrested was not an employee nor was he connected in any way with the bar. He said that the bar's record was without blemish and that the place would have to be left unattended whenever he had to order merchandise by telephone.

### *Nature of Coin Box Service*

The court commented at the outset that the petitioner did not comprehend the precise nature of the situation here involved. The matter at hand involves a public service by means of coin boxes. A person in whose establishment a public phone is located is an agent of the company. The phone is installed for the benefit of the public at large and in its interest. The company has the right to decide "as to whom it will constitute its agent in connection with its general public phone booth service."

### *Reasonable Application of Rule*

The court said that in such a proceeding its authority was limited to a determination as to the reasonableness of the company's application of its rules regarding the termination of coin box service. Its conclusion was that the former subscriber had failed to show any unreasonableness or discrimination, while the company had affirmatively established the reasonableness of its action. The evidence produced by the company included a statement of the rule regarding unlawful use, the testimony of a detective as to the telephone's part in the "policy game," and the record of the establishment consisting of eight arrests in a 2-year period. *1887 Bar & Grill Inc. v. New York Teleph. Co. 140 NYS2d 15.*

## Expense Claims for Taxes, Unnecessary Labor, and Sales Promotion Adjusted

THE Wisconsin commission directed a gas company to refund to customers the difference between interim rates previously authorized and final rates prescribed. The final increase authorized was lower than the interim rates because the pipeline supplier's increase had not been as large as anticipated.

Working capital was excluded from the rate base since income tax accruals were

more than sufficient to offset the amount of money needed.

The company had included in its cost of service estimated ad valorem taxes which were based upon estimated increases in property subject to assessment and increased tax rates. The commission noted that the latter assumption was made despite the fact that the state tax rate had shown a pronounced downward trend in the last few years. In the light of such trend, the commission deemed the company's estimate excessive.

The commission found that the labor force at certain plants was greatly in excess of requirements for test operations and maintenance on a stand-by basis. Noting that only a skeleton force was required to meet minimum safety standards, the commission refused to burden ratepayers with the cost of maintaining nonproductive labor to the extent incurred by the company. Claimed labor expenses were reduced accordingly.

The proper allocation of expenses between sales promotion and merchandising and jobbing, a nonutility function, came up for discussion. The company had charged the salaries of residential salesmen to sales promotion and their commissions were charged to merchandising. No part of the supervision for the general sales manager's responsibility area was assigned to merchandising.

Also charged to sales promotion were the cost to the company of television and display board advertising, newspaper advertising, space occupied by merchandise in the office building, depreciation and ad valorem taxes on office building and furniture used in merchandising activities, payroll taxes, and welfare and pension expenses applicable to employees engaged in merchandising activities.

The commission disagreed with the company's view that the only joint expenses chargeable to merchandising were those incurred on an incremental basis. The company's theory of cost allocation was inconsistent with the actual facts. The commission found a substantial portion of the amount charged to sales promotion should be eliminated from operating expenses and charged to merchandising.

The final increase, as authorized, would produce a return of 6.2 per cent, which the commission considered fair and reasonable. *Milwaukee v. Milwaukee Gas Light Co. 2-U-3609, February 24, 1955, rehearing granted March 31, 1955.*

## Commission Passes on Expense Claims and Disallows Part of Water Transmission Loss

THE Pennsylvania commission, in determining the fair value of a water company's property for rate-making purposes, gave consideration to original cost and reproduction cost, the latter at the fair average price of materials, property, and labor. Additional revenue which would produce a return of 6 per cent was authorized.

A corporation had been rendering management and supervision services to the company, which included customer billing, service complaints, telephone and telegraph, and bookkeeping and accounting.

Since the company could not economically maintain separate office staffs and maintenance crews and the necessary equipment incident thereto, the commission allowed the expense.

The amortized portion of the cost of an engineer's survey and report on water

leaks was allowed even though the expense was of a nonrecurring nature, the commission pointing out that the actual expenditure was in the public interest. Rate case expenses were allowed to be amortized over a 5-year period.

*Excessive Water Cost*

The commission considered the figures for purchased water excessive. The company's supply was delivered through an antiquated transmission main which it did not own, and the line loss was high. The commission recognized that the company would continue to spend excessive amounts for water in lieu of normal maintenance, until it obtained another source of water or adopted a regular maintenance program.

The full amount claimed was not allowed since the commission felt it would be unfair to require the customers to pay for many times as much water as used in order to compensate the company for excessive purchases. However, a reasonable allowance was made in lieu of maintenance. *Pennsylvania Pub. Utility Commission et al. v. Cowden Water Co. Complaint Docket Nos. 16190, 16167, February 28, 1955.*

## Valuation for Condemnation after Commission Certification of Figures as to Earnings

THE appellate division of the New York supreme court has reversed and remanded a lower court order confirming an appraisal of a water company's property which was being condemned by a water authority and denying the public service commission's motion for discontinuance of the proceeding.

It found that the condemnation award was made upon an erroneous theory of valuation, that there was no evidence of record from which the value of the property might be correctly determined, and that the record was insufficient to support the conclusion that "due regard" was accorded the anticipated earnings certified by the public service commission.

*Figures Certified by Commission*

Under 1952 amendments to the Condemnation Law, the public service commission must certify to the court the annual net earnings which the utility system might reasonably be expected to continue to produce in the hands of the condemnee, and the rate base and return from which that estimate is derived. But this legislative direction was said to be only the statutory expression of what has long been the law, that the capitalization-of-earnings method is a proper consideration in arriving at the value of a regulated public utility.

That is not to say that the appraisal commissioners must accept the certified rate of return as the capitalization rate. The statute does not so direct, nor has the public service commission ever taken this position. The court held that the statute requires nothing more than that the commissioners of appraisal give "due regard" to the certified earnings.

In view of this requirement, it was deemed essential that it should appear from the record that the commissioners have not brushed aside as inconsequential the earnings certified by the public service commission. The court said that "it is not too much that the courts require some evidence that the will of the legislature has been done." Nothing in the record indi-

cated compliance with the statute, in the court's opinion.

*Value to Condemner or Condemnee*

The court pointed out that, regardless of the principle of valuation adopted, the question of just compensation is not determined by the value to the government which takes, but the value to the individual from whom the property is taken. In the present case the court concluded that the award was not based upon damages to the present owner but, contrary to law, upon the benefit to the condemner.

There was little or no testimony in the record upon which the value of the plant in its existing condition under the water company's management might be correctly determined. The company presented only evidence of reproduction cost of the property, whereas the authority condemning the property evaluated the system upon its earning power as a tax-free operation.

The authority's witness admitted that his value figure did not represent "what this property is worth but a figure which the authority can afford to pay." The court held that this test of value could never be accepted, let alone considered. It said that while such an approach to value may have its practical application in a bargain and sale situation, such a limitation cannot be forced upon an unwilling seller. Limitations, practical or otherwise, upon the availability of the wherewithal to provide "just compensation" do not constitute the measure of that compensation.

*Valuation of Properties*

The valuation of utility properties in eminent domain cases presents unique problems. The absence of sales of similar property presents one difficulty. For another thing, the taking includes not only the property but also the business. It was conceded that no hard and fast rule can be laid down to cover every case or fix in advance the limit of the matters that may be considered by the appraisal commissioners in any particular case.

The usual method of fixing value in condemnation cases is by ascertaining the market value. But, the court said, since there is hardly a market for a public utility, one must turn to other tests of value. Original cost and reproduction cost are admissible as evidence of value, but neither is conclusive. Capitalization of earnings is another method of appraisal which has met with approval in some jurisdictions, although usually rejected as the sole test. *Onondaga County Water Authority v. New York Water Service Co. et al. 139 NYS2d 755.*

## Gas Company Relieved of Refund Obligation

A GAS company's application for an order relieving it from the obligation of making refund of moneys received by it from its supplier was approved by the Wisconsin commission. When the Federal Power Commission reduced its supplier rates, the company received about $8,000 to distribute among its customers. After deducting the cost of making the refunds, the net amount refundable would approximate $6,700.

*Absorption Proposal*

More recently the cost of supply had been increased substantially. The added cost for the remainder of the current year would be over $45,000. The company pro-

posed to absorb the increase and use the refund to offset in part the added cost.

*Return Consideration*

The commission did not consider the company's request unreasonable inasmuch as the higher cost of supply had resulted in its earning less than the 6.3 per cent return which the commission found reasonable in its last rate order. Another stipulation which was a factor affecting the commission's decision was the company's agreement that if a refund was received of part of the most recent increase in the cost of supply, this amount would be distributed among the customers. *Re Wisconsin Southern Gas Co. 2-U-4151, May 16, 1955.*

## Telephone Use by Patron of Bar and Grill Causes Loss of Service

THE California commission dismissed a subscriber's complaint against a telephone company's refusal to restore service. The company had acted upon receiving a request from the chief of police to discontinue the service because of its use for bookmaking. The commission, however, provided for consideration of an application for service after thirty days.

*Evidence of Unlawful Use*

Testimony at the hearing indicated that a beer-drinking customer of the establishment had occupied a considerable portion of his time on the telephone. It did not appear that the management was aware that the patron was receiving bets on horse racing over the telephone. Police officers testified that they had found "betting markers" on the customer and had answered the phone in his stead and heard the person on the line place a bet on a horse. Subsequently, the chief of police requested the company to discontinue service. The company's action pursuant to this request, the commission concluded, was based on reasonable cause. *Levy et al. v. Pacific Teleph. & Teleg. Co. Case No. 5624, Decision No. 51385, April 26, 1955.*

## Motor Common Carrier Certificate Interpreted to Exclude Transportation of Acid

THE Utah supreme court set aside a commission decision that a common carrier by motor vehicle had authority to transport acid used in the processing of uranium.

This common carrier had contended that another carrier's application for authority would duplicate its rights.

The present operator was authorized to transport commodities requiring equipment or service of a character not regularly furnished by regular common carriers and for commodities which required the rendering of a special service. It was also authorized to haul supplies used in the construction, development, or maintenance of facilities for the discovery and production of minerals. Several commodities were named as examples of the types of articles to be transported, with the provision that the authority was not limited to the named commodities.

The carrier, according to the court, could not claim that the use of acid in con-

nection with uranium mining was a facility for the development and production of minerals. Where there was uncertainty about intent, said the court, the meaning of doubtful words or phrases should be determined in the light of associated words and phrases. General words or terms following specific ones must be understood as applying to things of the same kind as the specific. But where an article is entirely foreign to the class of commodities covered, it could not be reasonably held to be within the meaning of the grant of authority. *W. S. Hatch Co. v. Utah Pub. Service Commission, 277 P2d 809.*

## Transit Tokens Discontinued

THE supreme court of Rhode Island affirmed a decision of the public utility administrator granting a transit company's petition for authority to increase rates by discontinuing the sale and use of tokens. The court found that if the petition were denied, the company would probably be threatened with the destruction of its credit, and perhaps insolvency.

The individual appealing claimed that the administrator neglected to consider current economic conditions in the community and that in so doing he misconceived the law as laid down in previous decisions by the court. Although the court agreed that the administrator should consider economic conditions, it concluded that this error did not affect the reasonableness of his decision. *Michaelson v. Kennelly, 113 A2d 121.*

## Spur Track Service on Existing Track Denied

THE owner of a warehouse located alongside a spur track complained to the Wisconsin commission that the railroad had refused service. It was shown that, for the successful operation of the warehouse, spur track service was practically indispensable. The warehouse had been constructed with proper clearances in conformity with legal requirements so that spur track service could be rendered without endangering the public.

The railroad complained of the operational difficulties servicing the complainant would entail. If a car were to be delivered to another shipper on the spur track, the railroad would have to switch out any cars spotted at complainant's plant before it would be able to deliver the car to the other party. The railroad indicated that it would have no objection to furnishing service to the complainant off a spur track constructed at the expense of the shipper.

The commission held that it had no power to require a railroad to render service to the public generally on a spur track which the railroad had constructed at its own expense for the service of one or more industries. The railroad could discontinue such a spur track at will, and the commission had no power to require its restoration and the resumption of service thereon except upon petition of the industry involved and at its expense.

Noting the willingness of the railroad to serve if the prospective shipper built a new spur track, the commission concluded that an adequate remedy for securing service was available, and denied the application. *Heyrman v. Kewaunee, Green Bay & W. R. Co. 2-R-2818, March 29, 1955.*

## *Other Recent Rulings*

*Competing Certificate Set Aside.* The Mississippi supreme court held that the commission had erred in authorizing motor carrier service in territory served by certificated carriers without first giving the existing carriers notice and a reasonable time within which to furnish necessary additional or improved service. *F. & W. Express v. Delta Motor Line et al. 78 So2d 887.*

*Reduction in Branch Line Service.* The Oklahoma supreme court upheld a commission determination that a railroad's application for permission to reduce branch line freight or mixed-train service from three times a week to twice a week should be denied, where such reduction would leave the various industries along the route without daily service of switching and spotting cars. *Chicago, R. I. & P. R. Co. v. Oklahoma, 281 P2d 172.*

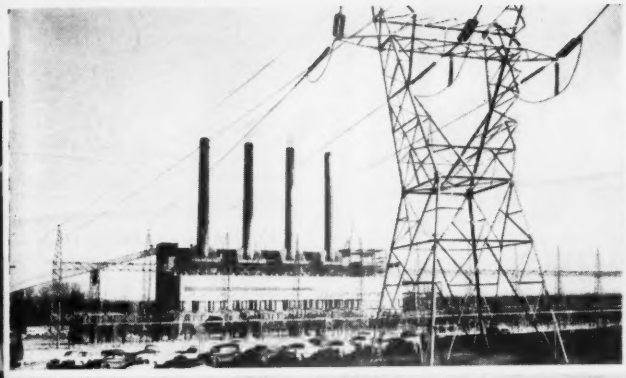
*Grade-crossing Apportionment.* The supreme court of Missouri held that the commission had jurisdiction over street crossings within a third-class city and had the right to apportion costs of safety appliances for such crossings between the railroad and the city. *Wabash R. Co. v. Wellston, 276 SW2d 208.*

*Contributions for Water Meters.* The Connecticut commission, in authorizing a rate increase for a small water company, refused to allow the company to accept customer contributions for the installation of meters, to be refunded with interest at the company's discretion, where it had been the universal practice for utilities to supply meters at their own expense and the return allowed was adequate to enable the company to finance the outlay without assistance from customers. *Re Newtown Water Co. Docket No. 9081, May 2, 1955.*

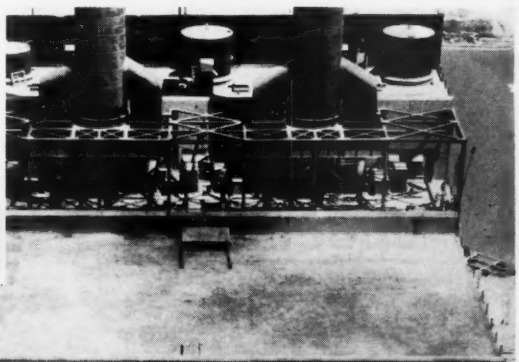
*Judicial Review.* The court of appeals at Kansas City, Missouri, reversed a lower court judgment and affirmed the commission's denial of a truck carrier's application to serve a certain route where the record contained adequate support for the commission's finding that a sufficient number of carriers were operating over the route in question and were rendering reasonably satisfactory service. *State ex rel. Denton v. Missouri Pub. Service Commission, 277 SW2d 684.*

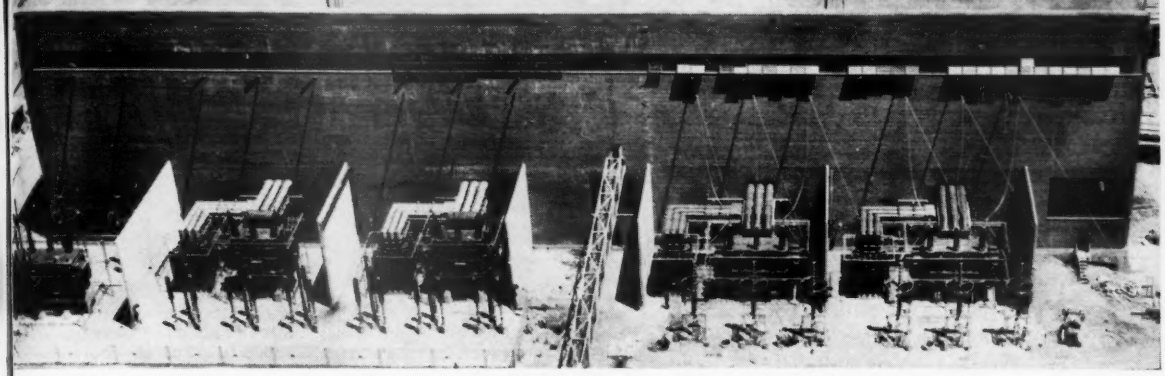
*Barge-rail Rates.* The United States district court did not find that an Interstate Commerce Commission order refusing to approve joint through barge-rail rates was discriminatory where there was no showing made that the present rates of the railroad and water carriers involved in the proceeding were improperly preferential or prejudicial. *Dixie Carriers v. United States, 129 F Supp 28.*

*Commission as Party on Appeal.* The New Mexico supreme court held that the commission was an indispensable party to an appeal by a trucker from a judgment vacating a commission order, which judgment contained injunctive features running directly to the commission and its personnel. *Ferguson-Steere Motor Co. v. New Mexico State Corp. Commission, 282 P2d 705.*



Public Service of Indiana's Wabash River generating station where four DELTA-STAR bus runs are now in operation.





# Success is contagious

With success comes satisfaction. Satisfaction leads to more of the same.

That's why this example of satisfaction with Delta-Star equipment has a specific meaning for you. That applies particularly if you are not now using Delta-Star's services and equipment.

# Four Delta-Star bus runs carry peak load

At Public Service of Indiana's Wabash River generating station, four main generator bus runs recently carried an all-time peak load of 400,000 kw. All four are Delta-Star bus runs.

# Fifth to carry additional 125,000 kw

Expanding again, Public Service of Indiana recently ordered a fifth Delta-Star bus run. This is typical of customer satisfaction with Delta-Star equipment—satisfaction originating from users' success with Delta-Star's high quality products, engineering assistance and service.

This kind of satisfaction may readily be yours. Just call on Delta-Star.

*For the best in high voltage electrical equipment, specify* DELTA-STAR

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**H. K. PORTER COMPANY, INC.**
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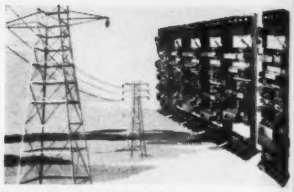
DELTA-STAR ELECTRIC DIVISION H. K. PORTER COMPANY, INC. OF PITTSBURGH

# Communications planning requires the communications specialist —

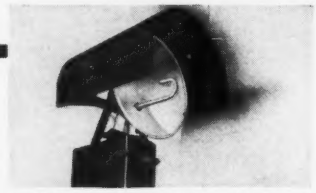
# MOTOROLA



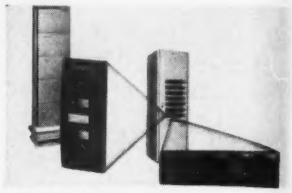
**POWER LINE CARRIER**—FM power line communications and aperiodic coupling units.

**TWO-WAY MOBILE RADIO**—vehicular and base station equipment for every application.

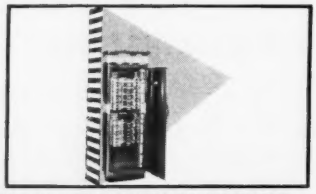
**TWO-WAY PORTABLE RADIO**—Handie-Talkie® portable radiophone and "Handie-Micro-Talkie" transmitter.



**MICROWAVE SYSTEMS**—multi-channel point-to-point message, control and video circuits.



**SUPERVISORY CONTROL**—All-tone systems for remote control and indication.



**VOICE FREQUENCY CARRIER**—frequency-shift carrier for control and communications.

**SYSTEMS ENGINEERING**—Sound planning, complete surveys, practical integrated systems design.

**SERVICE**—Installation, maintenance, parts, continuing customer service.

**FINANCE**—Purchase, conditional sale, lease (with or without equity), with single contract installation and maintenance if desired.

Whether you're just discovering all the advantages of a specialized communications system, or adding to your present one, you need expert professional counsel. With over 25 years of pioneering and experience *exclusively* in electronics, Motorola Communications Engineers are well qualified to help you solve all your communications problems. By producing such a great variety of basic equipment, we can integrate it to provide a custom-made communications system at production line prices. Unexcelled engineering skill, a creed of quality products and customer service stand back of the Motorola representative in your area. Let him show you how the various time-saving, profit-making communications tools will help you. Write, phone or wire today.

**MOTOROLA**

*2-WAY RADIO*

*Motorola is the only complete supplier of communications and control equipment for the power utility industry — specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance . . . lease. "The best costs you less—specify Motorola."*

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4501 AUGUSTA BOULEVARD • CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS LTD. TORONTO, CANADA

# Industrial Progress

## Dayton Power & Light to Spend $21,500,000 on Tait Station

A $21,500,000 modernization of the Frank M. Tait generating station was announced recently by Kenneth C. Long, president of The Dayton Power and Light Company. This is the first step in a program that will give this station an ultimate capacity of 400,000 kilowatts, according to Mr. Long. Some of the old and small units will be removed and replaced with new and larger equipment.

Also announced was the company's 1955 total construction program of $12,675,000. The total is divided as follows: Electric facilities—$9,616,000; Gas facilities—$2,506,000; and Steam and water divisions—$553,000.

The total expenditures for the year include $550,000 for the beginning of the work at Tait station.

## G-E Releases New Bulletin On Repainting Transformers

"REPAINTING Transformers In The Field" is the title of G-E bulletin GET-677F now available from the General Electric Company, Schenectady 5, New York.

The eight-page publication is profusely illustrated and includes a discussion of proper painting methods for longer paint life, preparation of paint, number of coats required, and has a discussion of repainting subway transformers.

## Continued Growth Predicted For Rockland Light & Power

ROCKLAND Light & Power Company, Nyack, N. Y. has undertaken a large expansion program designed to accommodate increased system demands, according to Charles L. Hulswit, president. After completion of its Grahamsville hydro-electric plant, this summer, the company will have a total generating capability of 172,000 kilowatts as compared with 36,000 kilowatts in 1948 and 84,000 kilowatts at the beginning of this year. Steam and hydro units going into operation in 1955 will more than double the previous electric generating capability. It is expected that this capability will be sufficient to take care of growth in electrical requirements through 1960 and possibly for a longer period.

## Southern Cal. Edison Dedicates 160,000 KW Unit at El Segundo

THE first unit of Southern California Edison Company's El Segundo steam-electric generating station was officially put into operation recently during a special dedication ceremony held at the plant. Following his unveiling of a permanent marker plaque, A. N. Kemp, Edison Company director, went to the plant control room where he opened the throttle to put the giant 160,000 kilowatt generating unit into full commercial operation.

According to the announcement, El Segundo is one of the nation's most efficient generating stations. When completed, with the second unit which is scheduled to be operational in the latter part of 1956, it will represent an investment of approximately $45,000,000.

Edison's El Segundo steam station is one of five steam-electric generating plants placed under construction by the company since the end of World War II.

Among the outstanding features of the station is the fully outdoor operating deck where turbines, generators, boiler firing aisle, and other equipment are located. In addition to materially reducing construction costs, the outdoor design will cut operation and maintenance costs. Another unique feature is the use of high viscosity fuel oil which is used to fire the giant boilers. The fuel is delivered directly from the adjoining Standard Oil refinery.

Seawater is used as a coolant for the condensers which condense spent steam back into water for re-use in the plant boilers. Two large conduits, each ten feet in diameter, extend approximately 2,800 and 2,000 feet into the ocean for intake and discharge of ocean water for the condenser cooling.

Edison's El Segundo station was designed and built by the Bechtel Corporation in close coördination with company engineers.

## A-C Releases Bulletin on 3-Pole Subway Oil Switches

A NEW bulletin giving design, construction features and general dimensions of Allis-Chalmers 3-pole non-automatic subway oil switches used for sectionalizing lines, switching of transformers, or similar services, has been released by the company.

Two types of switches are described—Type M-25, rated 300 amperes, 5,000 volts, and Type M-50, rated 400 amperes, 7500 volts. The switches are available with either single or multiconductor cable sleeves and are designed for positive and safe operation without frequent adjustment or inspection.

Copies of the bulletin, "Allis-Chalmers 3-Pole Subway Oil Switches," 71B6101B, are available on request from Allis-Chalmers Manufacturing Company, 965 S. 70th street, Milwaukee, Wis.

## Portland Gas to Launch $16,000,000 Program

PORTLAND Gas & Coke Company will start immediately a $16,000,000 construction program to take care of the expansion of business expected with the arrival of natural gas in its area in the summer of 1956, according

(*Continued on page 25*)

*This advertisement is neither an offer to sell nor a solicitation of offers to buy any of these securities. The offering is made only by the Prospectus.*

NEW ISSUE

June 8, 1955

## 575,856 Shares

# Baltimore Gas and Electric Company

## Common Stock

(No Par Value)

Holders of the Company's outstanding Common Stock are being offered the right to subscribe at $30.25 per share for the above shares at the rate of one share for each ten shares of Common Stock held of record on June 7, 1955. Subscription Warrants will expire at 5:00 P.M., Eastern Daylight Saving Time, on June 22, 1955.

The several Underwriters have agreed, subject to certain conditions, to purchase any unsubscribed shares and, both during and following the subscription period, may offer shares of Common Stock as set forth in the Prospectus.

*Copies of the Prospectus may be obtained from any of the several underwriters, including the undersigned, only in States in which such underwriters are qualified to act as dealers in securities and in which the Prospectus may legally be distributed.*

**The First Boston Corporation**

**Blyth & Co., Inc.** | **Alex. Brown & Sons** | **Harriman Ripley & Co. Incorporated** | **John C. Legg & Company**

**Merrill Lynch, Pierce, Fenner & Beane** | **White, Weld & Co.**

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*This advertisement is neither an offer to sell nor a solicitation of offers to buy any of these securities. The offering is made only by the Prospectus.*

NEW ISSUE

June 10, 1955

## 245,000 Shares

# Kansas City Power & Light Company

## Common Stock

(Without Par Value)

Holders of the Company's outstanding Common Stock are being offered the right to subscribe at $37 per share for the above shares at the rate of one share for each ten shares of Common Stock held of record on June 9, 1955. Subscription Warrants will expire at 3:30 P.M., Eastern Daylight Saving Time, on June 27, 1955.

The several Underwriters have agreed, subject to certain conditions, to purchase any unsubscribed shares and, both during and following the subscription period, may offer shares of Common Stock as set forth in the Prospectus.

*Copies of the Prospectus may be obtained from any of the several underwriters, including the undersigned, only in States in which such underwriters are qualified to act as dealers in securities and in which the Prospectus may legally be distributed.*

**The First Boston Corporation** | **Blyth & Co., Inc.**

**Glore, Forgan & Co.** | **Kidder, Peabody & Co.** | **Merrill Lynch, Pierce, Fenner & Beane** | **Smith, Barney & Co.**

**White, Weld & Co.** | **A. C. Allyn and Company Incorporated** | **Bear, Stearns & Co.** | **Coffin & Burr Incorporated** | **Hallgarten & Co.**

**Stern Brothers & Co.** | **Spencer Trask & Co.** | **G. H. Walker & Co.** | **Dean Witter & Co.**

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*This advertisement is neither an offer to sell nor a solicitation of offers to buy any of these securities. The offering is made only by the Prospectus.*

NEW ISSUE

June 6, 1955

## 275,464 Shares

# Public Service Company of Colorado

## Common Stock

($10 Par Value)

Holders of the Company's outstanding Common Stock are being offered the right to subscribe at $38.50 per share for the above shares at the rate of one share for each ten shares of Common Stock held of record on June 3, 1955. Subscription Warrants will expire at 3:30 P.M., Eastern Daylight Saving Time, on June 20, 1955.

The several Underwriters have agreed to form and manage a group of securities dealers for the purpose of obtaining subscriptions through the exercise of Subscription Warrants by original holders thereof and, subject to certain conditions, to purchase any unsubscribed shares and, both during and following the subscription period, may offer shares of Common Stock as set forth in the Prospectus.

*Copies of the Prospectus may be obtained from any of the several underwriters only in States in which such underwriters are qualified to act as dealers in securities and in which the Prospectus may legally be distributed.*

**The First Boston Corporation** | **Blyth & Co., Inc.** | **Smith, Barney & Co.**

**Boettcher and Company** | **Bosworth, Sullivan & Company, Inc.**

INDUSTRIAL PROGRESS
(*Continued*)

to Charles H. Gueffroy, president.

With the advent of natural gas the company expects its 82,000 customers to increase to at least 115,000 and possibly 130,000 by 1960. Total gas sales are expected to increase four or five times in that period, previous company studies have indicated.

The company also estimates that it will cost $3,000,000 to convert gas burners for use of the new natural gas.

## R & S Offers Booklet on "One-Step" Method of Bill Analysis

RECORDING & Statistical Corporation is offering to utility management an illustrated brochure "The 'One Step' Method of Bill Analysis." This booklet sets forth the advantages of this exclusive "One-Step" method for the preparation of utility bill analysis. Among the advantages listed are—lower cost, simplified billing procedures, and more detailed consumption data.

The booklet points out that in addition to the "One Step" method of bill analysis, R & S offers a complete service for the electronic compilation of figures on Sales Analyses; Market Research Tabulation and Analysis (including actual framing of questionnaires); Fixed Asset Studies; Inventory Control; Personnel and Labor Studies; Tax Statements; and Peak Load Service.

Copies of the brochure may be obtained from Recording & Statistical Corporation, 100 Sixth avenue, New York 13, New York.

## Seattle Gas Preparing For Natural Gas

FIVE construction jobs totaling $2,506,500—the first phase in Seattle Gas Company's vast program to prepare for the distribution of natural gas—have now been contracted for or authorized, Walter S. Byrne, president, announced recently.

Contracts for two of the jobs already have been awarded. Engineering on the other three is under way, and contracts are expected to be awarded in mid-December. All of the work will be completed prior to July 1, 1956, target date for the arrival of natural gas in Seattle.

The construction schedule is to complete main transmission lines to bring natural gas from the company's two city gate locations, north and

(*Continued on page 26*)

**"Baby Digger" truck loads in close quarters, has big capacity, digs up to 20" wide, 5' deep**

This East Ohio Gas Company job, the replacement of a main extension, shows why the Cleveland Model 92 "Baby Digger" is so widely used for city digging. The "92" puts the edge of a trench within 17 inches of a parallel wall, loads excess spoil directly into trucks at the curb, and affords the operator full visibility of the whole job.

Its exclusive Cleveland multispeed transmission provides over 30 evenly graduated digging wheel and crawler speed combinations, from 6 inches to 30 feet per minute. Its lower wheel speeds enable it to pick its way safely through the numerous underground obstructions typical of city digging. The three lower of its four wheel speeds provide the correct power applications for digging in even the toughest soils. And its highest speed combinations, of course, assure high daily footage on jobs where high production rates can be used to advantage. It has ample capacity for trench from 10 to 20 inches wide, down to 5 feet deep.

Compactness, maneuverability, speed combinations, capacity—if most of your trenching jobs are city jobs, the "92" is *the trencher for you!*

And does it get around! The "92" hustles safely from job to job . . . at legal limit speeds . . . because it's so easily portable on the drop-axle, tilt-bed Cleveland T5 Trailer.

*See your local distributor for the full Cleveland story or write direct to:*

**THE CLEVELAND TRENCHER COMPANY • 20100 St. Clair Ave., Cleveland 17, Ohio**

**CLEVELAND**

south of Seattle, into the company's distribution system.

## R-R Issues Booklet on File Reorganization

A COMPANY with 25 four-drawer files can save at least $1,925 a year through professional file reorganization, according to "Subject File" a new folder by Remington Rand.

It tells how business and industry can secure these worthwhile annual savings through records analysis and file reorganization by the company's Business Services Department file organizers.

Subject Filing, which can be tailor-made for each organization, brings all like material together in one place aiding in quick efficient executive decisions.

A typical records analysis and file reorganization project is described in a 10-step procedure.

"Subject File"—BSD 32—is available at Remington Rand sales offices in all principal cities or by writing Remington Rand Inc., 315 Fourth avenue, New York 10, N. Y.

## Underground Storage of Natural Gas Increasing

THE volume of natural gas in underground storage in the United States in 1954 was 1 trillion 11 billion cubic feet, according to a report issued by the Committee on Underground Storage of the American Gas Association. This represented an increase of 125 billion cubic feet over the previous year. Volume of gas in storage in five years has risen to 2.45 times the 412 billion cubic feet in storage in 1950.

The ultimate capacity of the underground storage reservoirs in the United States which includes all native and cushion gas in the reservoirs, on October 31, 1954, the end of the AGA association year, was 1 trillion, 859 billion cubic feet, an increase of about 125 billion cubic feet over the previous year. Ultimate capacity for storing natural gas underground has increased about 2.40 times since 1950 when such capacity totaled 774 billion cubic feet.

At the end of the 1954 year there was a total of 6,395 active wells operating in 172 pools located in 17 states. A year earlier there were 5,789 active wells in 167 pools in the 17 states with underground storage facilities. At the end of the 1954 period there were 12 new underground storage pools under construction. When completed, these pools will add another 180.4 billion cubic feet of capacity to underground storage facilities in the United States.

This growth in underground storage operations has meant a large capital investment. The AGA committee estimates that total capital investment in underground storage operations in 1954 was $343,000,000. This includes estimated value of cushion gas as well as investment in plant for underground storage. It is estimated that an additional 64 million dollars will be invested in underground storage facilities in the next three years as a part of the $2.7 billion the gas industry expects to spend in new construction in that period.

Pennsylvania continues to lead the 17 states in underground storage operations with about 266 billion cubic feet stored in 1954. Ohio is second with a maximum of 191 billion cubic feet underground and West Virginia ranks third with maximum gas in storage in 1954 totaling 161 billion cubic feet.

## Kentucky Utilities Installing Microwave Communication System

CONSTRUCTION work is underway on a microwave communication system which will link Kentucky Utilities Company facilities at Lexington, Dix Dam and Green River power station.

The system, which is expected to be in operation early this summer, will be used for power dispatching, telemetering, supervisory control, remote control of local two-way radio installations and emergency and business communications.

The first tower has been erected at Dix Dam, the hub of the K.U. transmission system. Its height is 282 feet. Other towers are going up at Caneyville in Grayson County, Beech Grove in Washington County, Badger in Larue County, Kessinger in Hart County, at the Green River power station near Central City, and in Lexington. The system is expected to be in full operation in July.

A similar microwave system is planned between Dix Dam and Pineville where one of the company's major generating stations is located.

Also planned is a microwave link between Dix Dam and the William C. Dale power station of East Kentucky Rural Electric Coöperative Corporation. Dix Dam is in the central dispatching point of the integrated East Kentucky-K.U. transmission systems.

## Ebasco Appointment

F. C. GARDNER, president of Ebasco Services Incorporated, engineering, construction and business consulting firm, has announced the appointment of William G. Lauffer as head of the Mechanical Plant Betterment Group of the Consulting Engineering Department. Mr. Lauffer succeeds the late Arthur H. Krauss.

Mr. Lauffer entered the steam power plant field with the operating department of Brooklyn Edison Company in 1923. Prior to joining Ebasco Services in 1939, he spent three years with Sanderson & Porter on design and operation of several power plant projects.

Since joining Ebasco, Mr. Lauffer has been assigned in Shanghai, has consulted and assisted in the solution of many operating and maintenance problems for most of Ebasco's client companies, and more recently was assigned to the new lignite burning plant designed and constructed by Ebasco at Sandow, Texas.

## Panhandle Eastern Pipe Line Plans To Boost Capacity by 160,000,000 Cu. Ft.

PANHANDLE Eastern Pipe Line Company has notified the Federal Power Commission that it plans to boost its coming winter peak day capacity by approximately 160,000,000 cubic feet of natural gas. This would be in addition to the 100,000,000 cubic feet of peak day capacity added to the pipe line's volume last winter.

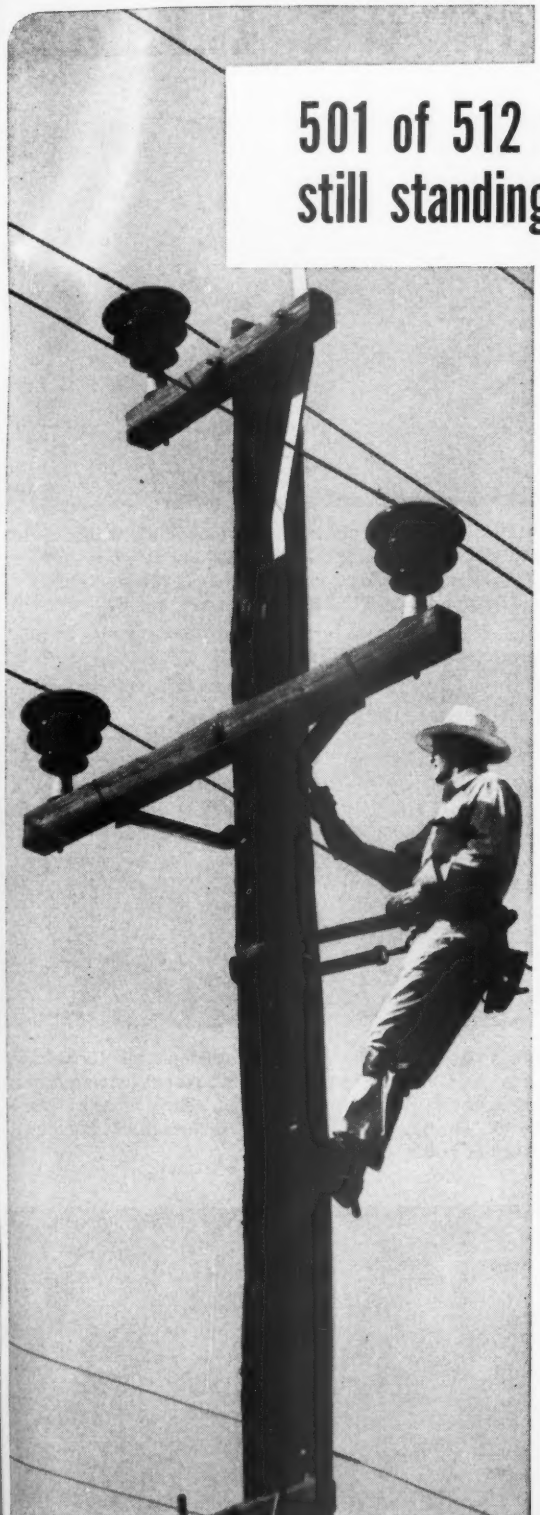
Panhandle's gas is delivered in greatest part to utilities and industries in Michigan, Indiana, Ohio, Illinois and Missouri. The company's three main parallel transmission lines stretch from the Southwest to Michigan and a subsidiary, Trunkline Gas Company, which draws on gas reserves along the Gulf Coast, feeds into the Panhandle system at Tuscola, Ill.

Half of the additional new capacity would be supplied by pumping new supplies of fuel through Trunkline and the other half will result from a series of operating improvements on Panhandle's main line.

Trunkline had earlier told the Commission that it proposed to spend $18,700,000 to expand its facilities to provide the additional volumes of gas. Panhandle has filed an application to spend $3,714,000 for new compressor engines to be installed at its Indiana pumping stations at Montezuma, Zionsville and Edgerton.

# Here's Proof of Performance...

## 501 of 512 pressure-creosoted poles still standing in this 27-year-old line



Duke Power Company, Charlotte, N. C. —supplying power to 40% of the nation's textile spindles—has been using pressure-creosoted poles since 1913. Careful records kept by Transmission Engineer M. E. Kimbrell show an extremely low rate of pole failure.

A 17.4-mile transmission line between Elkin and North Wilkesboro, N. C. was erected in 1928 with 512 pressure-creosoted poles. Today, 501 of these poles are still in service in their original locations.

Pressure-creosoted poles which Duke Power Company is obtaining today not only meet the requirements for long life, but high standards of pole cleanliness as well.

Your pressure-treater can supply you with poles that meet these requirements, especially if he uses USS Creosote. It's a uniform preservative, made to give uniformly good results. For complete information, contact our nearest Coal Chemical sales office listed below or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

• • •

**One of the 27-year-old pressure-creosoted poles in Duke Power Company's transmission line between Elkin and North Wilkesboro, N. C.**

**You can obtain clean pressure-creosoted poles upon specification without sacrificing pole service life.**

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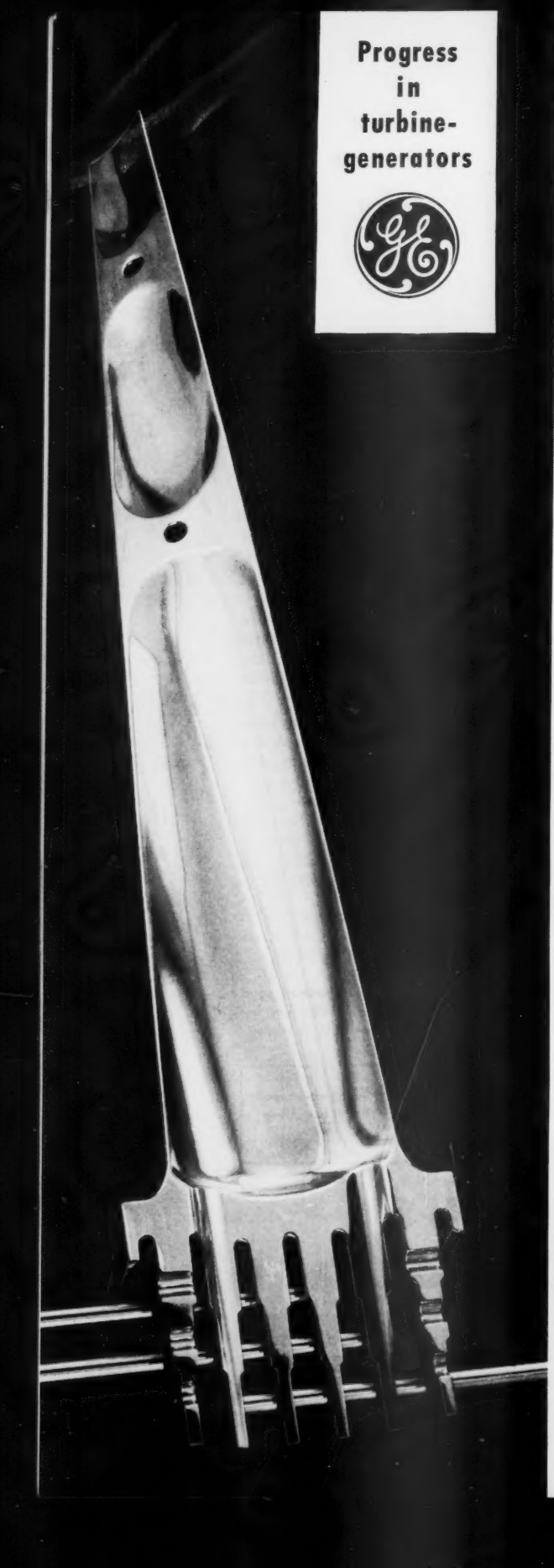

**Progress in turbine-generators**

# How G-E turbine

**METALLURGY.** Special alloys for turbine buckets are developed in General Electric's Materials and Processes Laboratory. Optical metallograph shown above achieves magnifications ranging from 50 to 2000 diameters.



**CREEP AND RUPTURE.** Without these special furnaces, pioneered by General Electric, today's advanced steam conditions might not have been reached. They measure the ability of various steels to resist deformation at high temperature under sustained stress.

**PHYSICAL TESTING.** Bucket materials slated for use in new G-E steam turbines are checked here for tensile strength, elasticity, ductility, impact strength, hardness, etc.

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# buckets are made stronger, longer, and more efficient

## Extensive research and development programs include testing of new metals, evaluation of new aerodynamic and mechanical designs

The G-E 26-inch, 3600-rpm turbine bucket at left, with a nested pin-type dovetail, was built to meet a specific need arising out of a new turbine design. It typifies the results of General Electric's intensive bucket research and development program.

Every new steam turbine condition—higher pressure, higher temperature, greater capacity—involves fresh bucket designs. In several General Electric turbine laboratories, specialists work at making buckets longer, stronger, and more efficient. For instance, a Materials and Processes Laboratory conducts applied research, development, and evaluation of basic materials and processes. Aerodynamics is studied in a special Air Test Laboratory. A new Product Development Laboratory evaluates actual working designs.

Currently, much attention is being focused on the turbine low-pressure section, an area which seems to hold great promise for improvement in over-all efficiency.

If you would like to know more about General Electric turbine-generator progress, contact your nearest Apparatus Sales Office, or write for a copy of bulletin GER-1047, "Research and Development in the Field of Turbine-Generators." Address Section 254–26, General Electric Co., Schenectady 5, N. Y.

**VIBRATION TESTING.** Natural vibration of buckets is accurately determined to help avoid coincidence of steam-impact frequencies with natural frequencies in operation.

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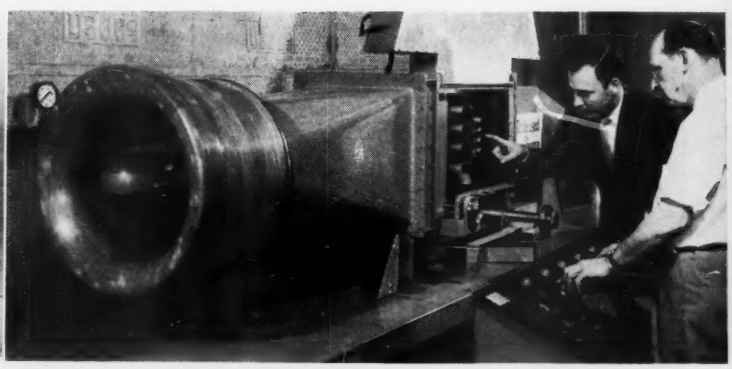

**AERODYNAMICS.** Smoke tunnel in G.E.'s Air Test Laboratory shows how steam will flow past proposed bucket and nozzle designs. Disturbances can be photographed for detailed analysis later. Other equipment includes a single-stage air turbine, complex recording instruments, and electronic calculators for converting the data to useable engineering information.

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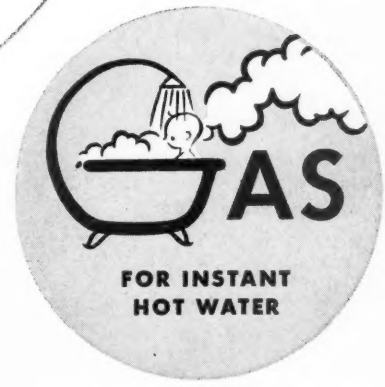

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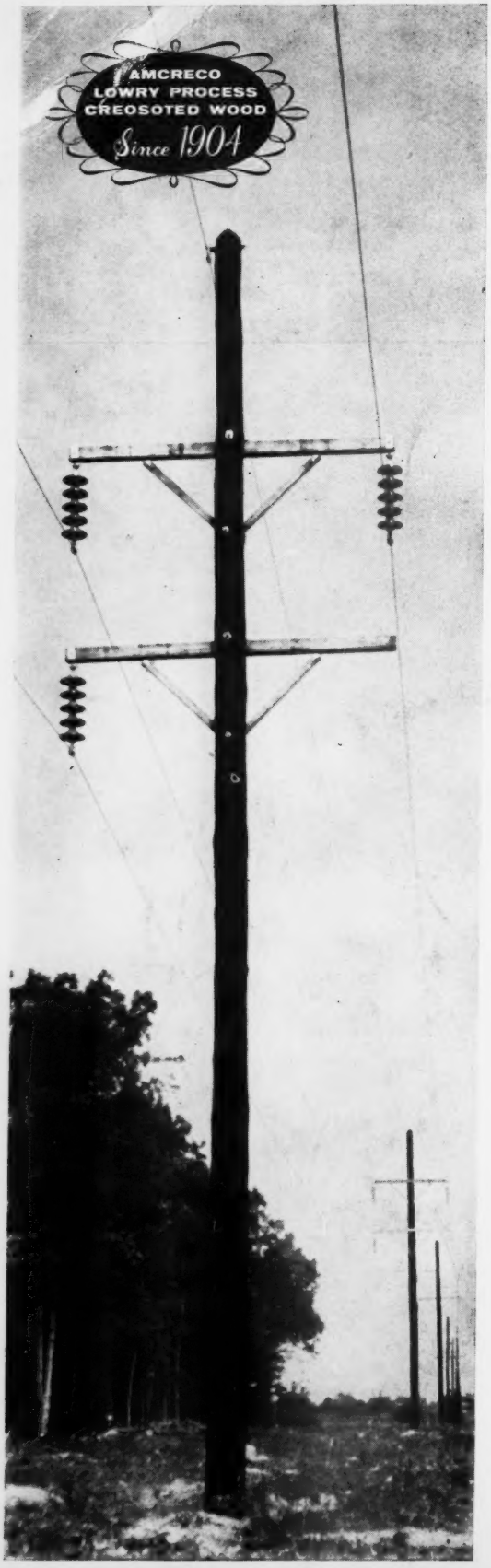


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